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CONTENTS

EDITORIAL:
- Editorial Notes 827
- Government Operation of the Panama Railroad..... 828
- Defective Box Cars 829
- The Construction Outlook 830
- The Press, the Public and the Railways..... 830
- Delaware & Hudson.....831, 874
- New Books 832

LETTERS TO THE EDITOR..... 833

ILLUSTRATED:
- Defective Box Cars and Damaged Freight..... 835
- Twin City-Twin Ports Line of the Soo..... 842
- Triplex Compound Locomotive 851
- Memphis Union Station 852

MISCELLANEOUS:
- An Interesting Rate Decision by the Canadian Railway Commission.. 839
- Car Design in the Technical Schools..... 841
- "Safety Meeting" at Cumberland 846
- Opportunities for Economy on Railways; by L. C. Fritch..... 848
- Bureau of Explosives Report..... 854
- Foreign Railway Notes 834, 847

GENERAL NEWS SECTION 855

IN looking over the illustrations in this issue, which show how box cars may be pilfered from without breaking the seal, one is reminded of the story of the Indian who robbed a United States mail bag . After slitting open the bag and removing the mail he grunted, "White man, fool! Put a brass lock on a canvas bag." Fourteen per cent. of the amount paid out for loss and damage to freight on the Frisco Lines last year was directly traceable to robbery. A large part of the pilfering was probably accomplished by forcing open the side and end doors without breaking the seals, or leaving any evidence that the car had been broken into. In such cases it is practically impossible to get any clues as to just where the pilfering was done. It is, of course, always an easy matter to break the seal, but employees of the railways are not going to take this chance of being detected. There are a number of different devices for making the side and end doors burglar proof, which are well known to practical car men. In most cases they do not add very much to the cost of the car, and it is, therefore, surprising to find that cars which have been built within the past year or two are not equipped with such devices. In the case of the door shoes or guides, it is not an expensive process to gradually apply burglar-proof shoes to the older equipment. It is only necessary to apply a burglar proof shoe at the rear of the door and the older, non-burglar proof shoes can be laid aside and be used for making repairs or replacements as the shoes at the front end of the door fail or are lost. The door hasp fastenings, even for strength and reliability under average conditions, should be more substantial than the defective type which is illustrated, and yet there are a large number of these defective fastenings in service. Possible criticism for publishing descriptions of methods of pilfering from box cars was carefully considered when the article was written. It was felt that the reason cars were allowed to remain in a condition such that this was possible was because railway executives generally do not know that a great number of cars can be entered without breaking the seals and that if they did they would take immediate steps to remedy this condition.

THE Safety Committees of the Baltimore & Ohio have made marked progress during the brief period since their establishment last November, and there, as on the North Western and other roads where the officers and employees have been aroused on the subject of protecting lives and limbs, the interest manifested among all classes seems to be deep and genuine. A report of one of the recent "mass meetings" held by the B. & O. general committee is given on another page. One evidence of the intelligence of the interest shown by employees in this reform was the applause which was elicited at this meeting by the pictures which Mr. Egan showed with the stereopticon. These pictures, showing not only shields for shop machines, etc., like those given in the *Railway Age Gazette* last December (page 1115), but also dangerous situations in yards, such as where a man kicks a car coupler into place or jumps on the front of a moving switching engine, illustrate all degrees of carelessness and thoughtlessness, and suggest varying degrees of bragadocio mixed with the carelessness; and it was plain that the assembled employees appreciated the lessons according to their importance—according to the seriousness of the foolishness illustrated. Presumably, the Baltimore & Ohio has its share of reckless men; but it is clear that it also has an adequate leavening of those who know the value of caution and who therefore will be able, by precept and example, to admonish those who are reckless or ignorant. Not the least important feature of the safety measures of the B. & O. is the fact that the vice-chairman of the general committee (J. W. Coon, assistant to the general manager,) devotes his whole time to this work. No important enterprise can succeed unless some one strong man makes that enterprise his principal business; and this fundamental principle is here duly recognized. Officers from all of the outdoor departments of the road must, of course, be interested, but no man who is engrossed in other work, even for half his time, can feel assured that he is accomplishing all that ought to be accomplished in an important new field like this. The general committee follows up the records very closely, as shown in our report, allowing nothing to be neglected because of any avoidable delay. Another thing to be done henceforth is to have one or more of its members present at the superintendent's investigation of every collision or derailment that may occur. Still another significant incident is the cultivation of acquaintance with the trainmen on their own ground. Members of the general committee accepted an invitation from a local lodge of the Brotherhood of Railroad Trainmen to attend a regular lodge meeting (in Baltimore) and they report the discussions there held as the most profitable in their experience. The one distinctive thing about the "safety movement" is the idea of getting each

individual employee to think and act, for his own safety and the general good, on his own initiative; and no railway officer needs to be told that to accomplish this it is essential to disarm every last vestige of suspicion—suspicion that the company has an ulterior, sinister purpose or motive. Giving all employees full opportunity to ask every possible question is a simple way to do this.

THE refusal of the New York Public Service Commission, Second district (up-state) to approve the New York, New Haven & Hartford's proposed sale of the majority of the New York, Ontario & Western stock to the New York Central & Hudson River is in conformity with the recommendations of the Securities Commission report. The Securities Commission recommended that a law be passed which should make it illegal for a railway company to buy the majority of another railway company's stock without offering to buy the minority stock at the same price per share as was to be paid for the majority stock. The reasons for such a recommendation and the reason underlying the refusal of the Public Service Commission to permit the New York Central's purchase are obvious. An individual who buys control of a railway company must depend for his legal profits on the earnings of the property in which minority holders of stock share pro rata; but when one railway company buys control of another, it may well be that it can afford to take an actual loss on its investment, as an investment, in order to secure advantages to itself which are not shared in by minority holders of the controlled company. The protests of the preferred stockholders of the Rutland, of the income bondholders of the Central of Georgia and of the preferred stockholders of the St. Joseph & Grand Island, claiming that their properties are managed for the benefit of the controlling railway at their expense, regardless of whether or not the protests have merit, illustrates what may happen to minority stockholders. Of course, if minority holders of stock are offered a chance to sell their securities at the same price the majority is receiving, and they do not take advantage of it, any future hardship will be the result of their own bad business judgment. There is one point that the Public Service Commission did not discuss, but which deserves notice. The original intention was to have the New York Central & Hudson River pay for the New York, Ontario & Western stock through the issue to the New York, New Haven & Hartford of a single large debenture. The Ontario stock was originally paid for by the New Haven through the issue of its own debenture bonds. As long as the New Haven retained in its own treasury the debenture that the New York Central gave it in exchange for its Ontario stock there would be no duplication of securities in the hands of the public. Were the New Haven, however, to sell this N. Y. C. debenture, or use it as part collateral for an issue of securities of its own which it would sell to the public, there would be a clear case of such duplication. The public would be buying securities back of which there was no new tangible property or new investment in such property. It is understood that there was to be nothing in the wording of the debenture or its indenture which would make it non-negotiable or prevent the New Haven from selling it or using it as collateral security.

A DISTINCT improvement in the efficiency of operation of the New York Central Lines during the year 1911 as compared with 1910 was noted in our reviews of the annual reports of the principal companies of the system in the *Railway Age Gazette* of March 22. On the New York Central, the Lake Shore and the Big Four there was an important increase in the train loading, without corresponding increases in the loading per car, which to a large extent counteracted the effect on the cost of conducting transportation of increased wages. In the case of the Lake Shore this was a large factor in actually reducing the cost of conducting transportation $1,198,000. On the New York Central the transportation cost was $996,504 larger than in 1910; on the Big Four it was reduced $430,408, and on the Michigan Central it was increased only $25,000, while the pay of road enginemen alone increased $82,000 during the year. Inquiry as to the means by which the increased cost of labor employed in train movement was partially, or wholly, or even more than wholly, offset on the various lines, has elicited the information that an extensive adoption of superheaters on the locomotives of the system has made possible a large increase in capacity per locomotive, making it practicable to haul additional cars per train at proportionately lower cost, and with a large saving in engine mileage, which was also appreciably affected by the reduced need for double headers. About 25 per cent. of the locomotives on the western lines have been equipped with superheaters during the past year or so, and the number is being rapidly increased all over the system. Of course, other factors have affected the result, particularly the unremitting effort to improve efficiency which has led to the seeking of every opportunity to secure better service from power and equipment. The average train load on the Lake Shore, which in the past has been heavy, was increased last year from 594 tons of revenue freight to 635 tons. Car loading was practically the same in 1911 as in 1910, but on the average there were 46 cars per freight train in 1911 as against 42 in 1910. On the New York Central the average freight train load was increased from 417 tons to 430 tons, adding 1.87 cars per train, with only a slightly better car loading. On the Big Four there was an increase from 431 tons to 445 tons and of three cars per train, with no change in average car loading. Although the total empty car mileage on all of the lines was greater than in the year before, it was handled by increasing the length of trains instead of with a proportionate effect on train mileage. On the New York Central, although freight car mileage increased over 50,000,000 miles, the freight train mileage increased only 250,860 and the freight locomotive mileage only 71,764 miles. In the passenger service the car mileage increased 2,123,790 miles, while the passenger train mileage shows a decrease of 348,800, and the passenger locomotive mileage was reduced by 743,326. On the Michigan Central there was a decrease of 1,310,000 miles in the total locomotive mileage and a decrease of 480,000 miles in the total train mileage; while on the Big Four the locomotive mileage decreased by 1,453,000 miles and the total revenue train mileage was reduced by 978,594.

GOVERNMENT OPERATION OF THE PANAMA RAILROAD.

THE advocates of government ownership of railways tell us that under public ownership the roads would be more economically managed and the public would receive the benefit in the form of lower rates. The government of the United States now owns a railway. It has owned and operated it for several years. This is the Panama Railroad. The efficiency with which it has been managed and the rates it has charged may throw more light on what the results of public ownership of all our railways might be than many bald assertions. B. L. Winchell, president of the Frisco Lines, has issued a statement regarding government operation of the Panama Railroad, which we give on another page, and which contains some highly interesting information. It shows that from the very time the government began to operate the road its operating ratio began to increase. This was in spite of the fact that its traffic was growing with almost unparalleled rapidity, the gross earnings of the railway and steamship lines together having increased 84 per cent. in seven years, while their operating expenses increased 110 per per cent.

The Panama Railroad now handles a little more freight per mile than do the railways of the United States on the average,

and has a much heavier passenger traffic per mile. Therefore, we might expect to find that its operating expenses per mile are higher. But who would be prepared to find that they are almost seven times as large as those of the railways of the United States? Panama seems to be an inviting field for the application of Harrington Emerson's theories of scientific management. It takes a heap of money to pay the operating expenses of the Panama Railroad, which average $49,482 per mile—as compared with only $27,677 per mile for the Pennsylvania Railroad, which handled three-fourths as many passengers per mile and five times as much freight per mile—and, therefore, Uncle Sam has to get very high rates. His average rate per ton per mile on the Panama Railroad is 4.14 cents. His rate on commercial freight crossing the isthmus is $3.67 for a haul of 50 miles, or over 7 cents per ton per mile; while he charges the Isthmian Canal Commission for the same haul, only $1.09, or about 2 cents per ton per mile. In the. United States of America there is a law entitled the Act to Regulate Commerce, which prohibits unfair discrimination between shippers under stringent penalties. But down in Panama Uncle Sam thinks it is all right to haul goods for himself at a rate of 2 cents per mile and then "stick" the commercial shipper for 7 cents per mile.

It is well known that the government, with its customary efficiency, very greatly underestimated what the Panama canal was going to cost. What would the Panama canal cost if the rates of the Panama Railroad for the handling of freight for the Isthmian Canal Commission were the same as its rates for handling freight for commercial shippers? Of course, the Panama Railroad belongs to the government, and the Isthmian Canal Commission is a government body, and the charges that the government makes on its own railway for hauling the freight of its own commission are largely a matter of accounting. But it will be noted, as is usually the case with governments, that the accounts are being so kept as to reflect glory where it will do the powers that be the most good. And, in the meantime, commercial shippers are paying rates which are 250 per cent. higher than those that are being paid by the Isthmian Canal Commission.

The theory on which the shippers and regulating authorities of the United States have acted is that a railway's rates should go down as its traffic and earnings go up, especially if it is earning a fair return or more. The government paid about $60,000 a mile for the Panama Railroad. Its net earnings per mile in 1911 were $30,816, or more than 50 per cent. on its cost. In two years, at that rate, the railway completely pays for itself. One would think that that should be considered a fair return, because the railways of the United States have to be satisfied with net earnings of only $3,895 per mile on a capitalization of a little larger than the cost of the Panama Railroad. But Uncle Sam is not satisfied with net earnings of 50 per cent., and so, after having earned this much in the fiscal year 1911, he announced last fall that hereafter his railway and steamship lines would appropriate 40 per cent. of the through rail and water rate between the Pacific and the Atlantic coast, instead of 30 per cent. as heretofore. Also, prior to that time Uncle Sam had been satisfied with a monopoly of the steamship business between Colon and the port of New York, but he then extended his monopoly to include also all business between Colon and the port of Philadephia.

If there was a railway in the United States which was earning as much money per mile as the Panama Railroad, and charging rates anywhere near as high, the Interstate Commerce Commission would step in and make sweeping reductions in the rates. But Uncle Sam is too good a business man to let the Interstate Commerce Commission have anything to do with his railway. Its rates are made by the arbitrary fiat of its officers, and there is no appeal to the commission.

Is it any wonder that the advocates of government ownership have never used the government-operated Panama Railroad as an argument for their cause?

DEFECTIVE BOX CARS.

BETWEEN eleven and twelve per cent. of the money paid out for freight claims on the Frisco system for the year ending June 30, 1911, was for damage which was directly traceable to defective equipment. If it were possible to add to it that part of the damage caused by rough handling, robbery and wrecks, which was primarily due to defective equipment, this percentage would probably be increased two or three times. The railways at large paid out about $30,000,000 in freight claims last year, and at least $4,000,000, and probably as much as $10,000,000 of it, was caused by defective equipment. When we also consider what this defective equipment must mean in the increased expense of maintenance due to poor design and construction, we are forced to conclude that some radical steps should be taken to bring about better conditions. A careful study of the defects which are responsible for the greater part of this damage indicates that remedies are available which if applied would practically prevent the larger part of the damage now charged against defective equipment, and at the same time would considerably reduce the charges against robbery and would possibly also affect the damages due to rough handling and wrecks.

In a series of articles, the first one of which appears in this number, an attempt has been made to locate such defects in box cars, and at the same time to suggest remedies which will overcome them, thus making the criticism thoroughly constructive. Moreover, it is realized that the railways under ordinary conditions will not promptly make the necessary changes and improvements in either the new equipment which they order, or in the older equipment, which is in such serious condition as to warrant immediate action being taken to put it in first class shape. This for the reason that any one road that might improve its equipment in this respect would not obtain the full benefit, because of a large proportion of its cars being off the system most of the time. To get the best results, therefore, all of the roads should act together.

E. D. Levy, assistant general manager of the St. Louis & San Francisco, in a paper read before the Association of Transportation and Car Accounting Officers, which met at Colorado Springs, Colo., June, 1910, suggested the desirability of having the American Railway Association appoint a committee which should pass on all plans and specifications for new freight car equipment, with a view to pointing out and remedying defects which would cause loss or damage to the commodities carried by such cars, making them water proof, grain tight and burglar proof.

In the working out of this scheme it would undoubtedly be necessary to form a bureau which would work under the direction of the committee, and which would be controlled by men of considerable experience in the design and operation of freight cars and with a knowledge of their suitability for service from a freight claim standpoint. Mr. Levy's suggestion also included a number of inspectors who would be located at the various car building works throughout the country and who would also direct the work of making the necessary improvements and changes in the equipment already in service on the various roads. The remaining articles in the series will consider the various defects which cause loss and damage to freight and will give suggestions as to how they may be overcome.

It may be argued that it will cost more to make the cars water, burglar and grain leakage proof than to pay the claims caused by defective equipment. Even if this were so, and it is extremely doubtful if it is, it is the duty of the railways to make this expenditure, because when they sign a bill of lading for freight it is their duty to transport it to its destination and deliver it in its original conditon. Even though it might be convenient and less expensive for them to continue maintaining the equipment as they have in the past, and pay the claims, they are not warranted in continuing this policy and forcing loss and inconvenience on the shippers, who are only partially compensated by the payment of claims for the actual loss sustained.

THE CONSTRUCTION OUTLOOK.

ACTIVE preparations are now being made for the railway construction work to be done this year. It is of interest to take inventory of the work already authorized and to note to what degree the construction outlook reflects the general commercial conditions of the country. In most business lines a more optimistic view of the prospects for the future is evidenced in spite of the fact that it is a "presidential year." The belief is prevalent that the lowest point of the depression has been passed, and that business is now on the upward trend.

That this same feeling is present in the railway field is evidenced by the construction plans already announced for this year. The past two years, and especially the last year, have witnessed the completion of large projects already started rather than the inauguration of much new work. A comparatively large amount of money has been spent, but it has been spent in finishing rather than in beginning projects. Conspicuous examples of this were, the Santa Fe extension across western Texas and the Delaware, Lackawanna & Western Hopatcong cut-off. Improvements advisable but not absolutely necessary were postponed until business conditions should improve.

This spring the conditions are more favorable. While the announcement of the resumption of work has not been general and many roads are still planning for a very quiet year, several new and expensive pieces of work have been announced. Conspicuous among these is the new double-track line of the Louisville & Nashville, between Nashville and Birmingham, with the second track on the present alinement south from Birmingham. These improvement will involve some very heavy work and will cost about $15,000,000. Contracts have already been let for a large part of them and work is now under way. This is one of the most important moves made up to this time by any of the railways to provide facilities for the handling of the increased north and south business which is expected to develop after the opening of the Panama canal. Another very heavy piece of work for which contracts were let within the past month is the Delaware, Lackawanna & Western's revision of grade and alinement between Clark's Summit, Pa., and New Milford. This is a further step in the policy illustrated in the construction of the Hopatcong cut-off, whereby this line, already the shortest between Buffalo and New York, is to be further shortened to handle more economically a very heavy freight tonnage. Another heavy expenditure recently authorized in the East is for the New York, New Haven & Hartford's electrification from Stamford to New Haven, which will give continuous electrical service from New York to New Haven, about 70 miles.

In the middle West the Chicago, Milwaukee & St. Paul has announced the most aggressive programme, consisting principally of heavy grade reduction and realinement in connection with the construction of a second track on the Chicago-Omaha line through Iowa. The demand for increased facilities here arises largely from the closer traffic relations that have been formed between the Milwaukee and the Harriman Lines, which were indicated by the recent inauguration of increased through passenger service following closely on the announcement of the tariff agreement between the Chicago and North Western and the Northern Pacific for the handling of through passenger business. The Chicago & North Western has let contracts within the past month for a 90-mile extension from Peoria south to the central Illinois coal fields which will involve some very heavy work, including the separation of all crossings with other railways. The Denver & Rio Grande has just announced its intention to provide a second track over Soldier's Summit and for some distance west of the continental divide, requiring an expenditure of over $3,500,000. In the far west the Harriman Lines have announced their intention of building several branch lines in central Oregon which are, however, for the most part comparatively inexpensive. The Northern Pacific has recently let the contract for the construction of a cut-off between Tenino, Wash., and Tacoma, which will complete the second track between Tacomah, Wash., and Portland, Ore. This will involve the building of several tunnels and very heavy work throughout.

All of these large improvements, and others that might be mentioned are, in addition to the usual amount of grade reduction, second track and terminal work which is necessary from year to year, and indicate a belief on the part of the railways that the present depression will soon be a thing of the past, as well as a realization of the necessity for increasing their facilities to handle the increased business which will surely come.

THE PRESS, THE PUBLIC AND THE RAILWAYS.

IN a speech at Baltimore last December, President Willard of the Baltimore & Ohio mentioned the change in the attitude of the press toward the railways that has taken place. "Five years ago," he said, "out of 100 articles, taken from as many papers, having reference to railways, at least 65 would be found to be distinctly hostile to the roads, and the remaining 35 indifferent or merely lukewarm in their support. Now, a similar investigation would show at least 90 distinctly favorable to the roads and practically none opposed." Mr. Willard's statements still hold good. There are yet some newspapers and magazines that attack the railways on every possible occasion, but their number is small, and their influence is declining. There has been a corresponding change in the attitude of the public, which the Illinois railway commission called attention to in its recent annual report. We gave in our issue of April 5, page 810, some extracts from the Illinois commission's significant observations on this subject.

The former hostility of public and press was due to two causes. First, there were many widely prevalent abuses in the railway business. Second, there were many conditions which were misunderstood, which were criticised because they were misunderstood, but criticism of which railway men habitually ignored. The change in the attitude of press and public is due, as the Illinois commission intimates, to the fact that the officers of the railways recently have been sincerely and zealously endeavoring to remedy the conditions of which there was just complaint, and also defending and giving publicity to the facts about the features of their business which have been unjustly criticised because misunderstood. Regarding the improvements in railway operation the Illinois commission says:

> "It is gratifying to be able to say, from information gathered by the commission throughout the state, that the people today are being, generally speaking, better served by the railways and common carriers (with a few exceptions), both in point of train service and car supply than at any previous time."

And the commission averts in the following sentence to other things of hardly less importance that the railways have been doing:

> "Greater publicity of the workings of the common carriers by them given to the public will naturally create a better knowledge of conditions, and when the public understand fully the conditions they will be just in their demands in relation to service, and the common carrier will have no trouble in receiving at the hands of the public a just compensation for the character of the service rendered the public."

One of the means that have been very influential in educating public and press regarding railway conditions has been the semi-monthly bulletin of the committee on Relations Between Railways of the American Railway Association, summarizing car shortages and car surpluses. Fortnight by fortnight for five years these bulletins have set forth the car situation, at present and also back to 1907, and during four of the five years they have shown that the surpluses were steadily exceeding the shortages—in other words, that the railways were providing more equipment than there was traffic for. These statistics will be

of even more value in the future when, probably, car shortages will return, for while they will show that for brief periods the equipment supply may be inadequate, they will also show that there have been periods of years at a time when the roads have had millions of money tied up in cars for which no traffic was forthcoming, and that if they do not provide enough equipment to handle readily the maximum amount of traffic the country can possibly furnish them at certain times, there is good reason why they should not do so.

The attempts of the railways to advance their freight rates, and the resulting hearings and decisions, also have exerted an important educational influence. They had for years been on the defensive in regard to rate matters. In the rate advance cases they assumed the offensive, and contended—and, in the opinion of many persons, demonstrated—that freight rates in the greater part of this country not only are not too high, but are too low. Even the attacks on the efficiency of their management had effects that were beneficial, for they served to direct attention to the fact that the main obstacle to the adoption of some plans for increasing efficiency has been the opposition of the labor unions, and that the demands of labor for ever increasing wages and easier conditions of employment have been tending powerfully to increase the cost of operation.

About a year and a half ago the railways established at Washington the Bureau of Railway Economics to study railway economic conditions and furnish information about them to railway men and to such newspapers and magazines as might care for it. Some newspapers thought that the bureau had been established merely to supply the kind of publicity matter with which newspaper men are familiar, and assumed an attitude of hostility toward it. The bureau went on, nevertheless, making its investigations and issuing its publications. Soon many newspaper men began to find that its monthly bulletins summarizing the earnings and expenses of steam roads contained the earliest correct and comprehensive information on the subject available. In consequence, its statistics have been increasingly quoted and commented on. It has issued a number of valuable and instructive pamphlets, such as its study of the valuations of railways that have been made in the various states and its study of the cost of transportation on the Erie canal. While the bureau is supported by the railways, its publications have been devoid of a tone of partisanship, and no serious inaccuracy has, we believe, ever been detected in its statements. They have been as free from bias as those of the Interstate Commerce Commission. All these things have tended to increase the confidence of press and public in the bureau's work, and to make it an influential instrumentality for the collection and diffusion of correct and timely information regarding railway affairs.

Another potent educational influence has been the work of the Special Committee on the Relations of Railway Operation to Legislation. It has collected and diffused a large amount of information bearing on the various phases of railway operation which Congress and the state legislature have been regulating, or considering regulating. Through its members, and spokesmen chosen by them, it has had numerous public conferences with representatives of the labor brotherhoods, and with the interstate and state commissions and committees of Congress. It has not considered it to be its function to oppose all legislation, but has opposed only legislation which seemed sure to be harmful both to the railways and the public, and has cooperated in framing legislation which seemed desirable in the public interest, even though it might tend to impose additional burdens on the roads.

Meanwhile, the presidents and other officers of individual roads have been participating more and more courageously and frankly in the discussion of questions mutually concerning the railways and the public. The change in the attitude of the press and public toward the railways unquestionably is chiefly due to the change in the attitude of the railways toward the press and the public, which the developments mentioned illustrate. The manifestation of a disposition of fair dealing and frankness on the one side is calling forth manifestation of a similar disposition on the other side—as, indeed, it almost invariably does in all affairs. The success that is attending the present policy of the railways should encourage them to persevere in it with increased zeal and confidence. A persistent prosecution of the work of righting the rapidly lessening number of things that are wrong in the transportation business, and defending the greatly preponderant and fast growing number of things that are right in it will in the long run effectually protect reasonable net earnings and render futile all the arguments of the advocates of unreasonable regulation or of government ownership.

DELAWARE & HUDSON.

THE Delaware & Hudson is a north and south line, in trunk line territory, with almost no branches, and reaching neither the Lakes nor the Atlantic coast. This in itself makes it an exception to other roads in its territory. Its reason for existence is that it taps the anthracite coal fields in Pennsylvania, supplying New England and eastern Canada with anthracite coal, and connects Albany with eastern Canada. Its most obvious competitors for the coal business are the New York, Ontario & Western, which, through its connection with the New York, New Haven & Hartford, supplies coal to New England, and the New York Central Lines, which, through their connection with the Delaware, Lackawanna & Western, can compete on coal for Canada. About 50 per cent. of the total tonnage carried by the D. & H. is anthracite coal, and 15 per cent. additional is other products of mines. Manufactures form about 14 per cent. of the total tonnage.

The Delaware & Hudson only operates 878 miles of line, and, as we have said, this is nearly all main line. The map shows what part of this road is double track. The importance of the property both as an earner and as a carrier is not adequately measured by the mileage operated. In 1911 total operating revenues amounted to $21,420,000, an increase over 1910 of $990,000. The added revenue in 1911 came largely in an increase in revenue from carrying coal. This revenue amounted to $9,850,000 in 1911, which is more by $1,120,000 than the revenue from the same source in 1910. The tonnage of coal carried in 1911 was 9,295,000 tons as against 8,270,000 tons carried in 1910. The total number of revenue tons carried one mile was 2,610,000,000, an increase of 153,000,000 ton miles. The average haul, was 131 miles, or very slightly more than in 1910; and the average revenue per ton per mile was 6.8 mills, or exactly the same as in 1910.

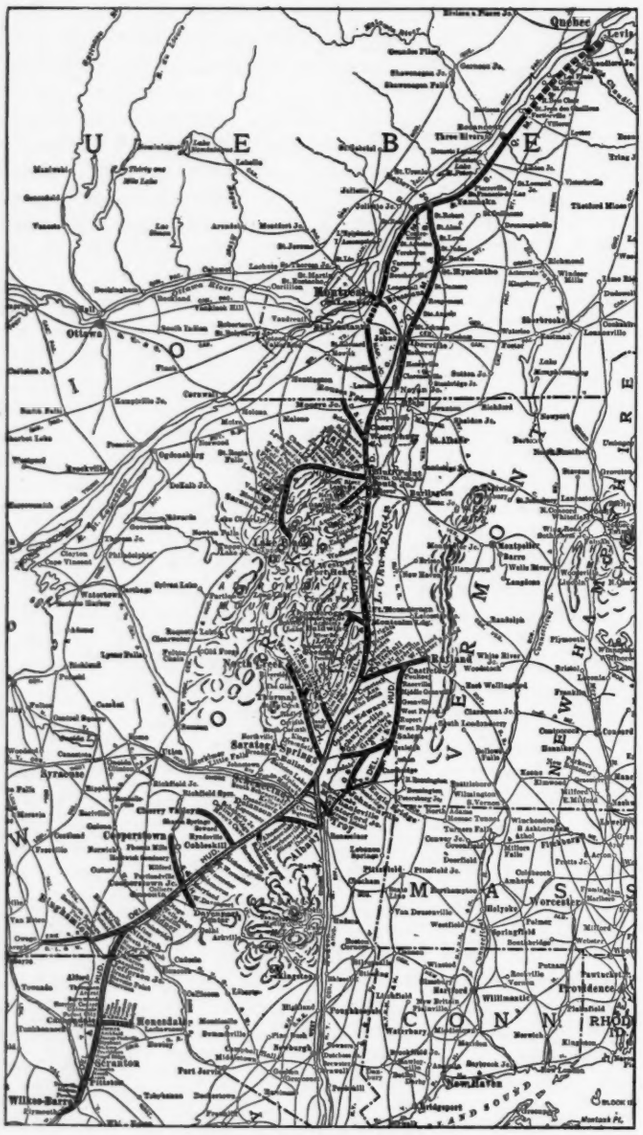
Passenger business, from a revenue point of view, on the D. & H. is comparatively unimportant, but it is interesting to watch the results from this business, because the D. & H. divides up its earnings from the different classes of passenger service, and on this road the receipts from commutation tickets are not very much smaller than the receipts from other ticket sales. In 1911 total passenger traffic revenue amounted to $2,970,000, an increase of about $60,000 over 1910. The receipts from ticket sales were $1,590,000, or 7.49 per cent. of total revenue from transportation, and only slightly less than the receipts from ticket sales in 1910. Receipts from commutations amounted to $1,160,000, which was an increase of $40,000 over the year before, and amounted to 5.43 per cent. of the total transportation revenue.

With revenue greater by $990,000 in 1911 than in 1910, and business greater by 153,000,000 ton miles and 4,410,000 passenger miles, total operating expenses increased by $560,000 and amounted to $12,760,000 in 1911. With the exception of a decrease of about $170,000 in other income, in part offset by a decrease of $65,000 in deductions from income, the income account below "net operating income" shows few changes. After paying interest and rentals there was available for dividends $5,240,000 in 1911, or 12.32 per cent. on the outstanding stock, comparing with

$5,330,000 available for dividends in 1910, or 12.54 per cent. on the outstanding stock.

The increase in expenses is explained by an increase of $220,000 in cost of maintenance of equipment and $350,000 in transportation expenses. There were 13,000,000 locomotive miles run in 1911 as against 12,690,000 miles in 1910, and loaded freight car mileage increased from 102,950,000 miles to 107,370,000 miles, while empty freight car mileage increased from 43,710,000 miles to 50,910,000 miles.

It will be recalled that in 1911 the Delaware & Hudson sold $7,000,000 additional first and refunding mortgage 4 per cent. bonds at a discount of $175,000. The balance sheet at the end of 1911 shows cash on hand of $1,920,000, as compared with $1,780,000 cash at the end of 1910 and $597,000 deposited with



The Delaware & Hudson.

the trustee as unexpended balance of the proceeds of the bond sale to pay for additions and betterments. Loans payable at the end of 1911 amounted to $900,000 as against $4,490,000 in 1910. During the year $2,370,000 was spent for additions and betterments to road, and $315,000 for additions to equipment. It is rather interesting to note that the D. & H. estimates that the safety appliance act of 1911 will involve an expenditure of about $315,000, which will extend over about five years. The D. & H. is now equipping 1,800 coal cars and 600 box cars with steel underframes, and when this work is completed 70 per cent. of the revenue freight car equipment will have steel underframes.

The following table shows the principal figures for operation in 1911 as compared with 1910:

	1911.	1910.
Average mileage operated	879	843
Coal freight revenue	$9,847,194	$8,724,581
Merchandise freight revenue	8,027,413	8,052,705
Passenger revenue	2,967,129	2,910,026
Total operating revenues	21,421,817	20,431,800
Maint. of way and structures	1,488,757	1,557,913
Maint. of equipment	3,060,739	2,842,069
Traffic	250,285	249,933
Transportation	7,414,071	7,066,049
Total operating expenses	12,758,159	12,198,287
Taxes	562,410	497,408
Operating income	8,101,248	7,736,105
*Gross railway corporate income	9,476,245	9,286,911
*Net corporate income	5,237,681	5,330,189
Dividends	3,825,270	3,825,270
Surplus	1,412,411	1,504,919

*Excluding the gross income from the coal department, which amounted in 1911 to $284,219, and in 1910 to $485,751.

NEW BOOKS.

The American Year Book. F. G. Wickware, editor. New York: D. Appleton & Co. Cloth; 5 in. x 8 in.; 863 pages. Price, $3.50 net.

This is the second volume of this annual record, the first having been issued in January, 1911. It is the work of 119 editors, all of them prominent specialists, and nearly all of them being either well-known authors or connected with well-known American educational establishments. They seem to have done their work with great thoroughness. This enterprise was established in 1910 by conferences of the members of national societies, and the Supervisory Board then organized has been incorporated as the American Year Book Corporation, with Prof. A. B. Hart, of Harvard, as president, and Prof. G. W. Kirchwey, of Columbia, as secretary. Thirty-nine of these professors and specialists constitute the board which has supervised the preparation of the present volume. About all of the learned societies of the country are represented, though we miss one prominent name—that of the American Society of Civil Engineers. The 38 chapters of the book are grouped under the following heads: comparative statistics; history and politics; government; economic and social questions; public works and national defence; industries and occupations; science and engineering; the humanities, and current record. Chapter 25, trade, transportation and communication, fills 30 pages, and its editor is Grover G. Huebner, of the University of Pennsylvania, who was joint author with Professor E. R. Johnson of "Railroad Traffic and Rates," an excellent compendium which was issued last year. Perhaps the most useful part of this chapter is the record of state legislation concerning railways, which, severely condensed, fills four pages. Another page is given to rulings of the Interstate Commerce Commission, and six of the leading court decisions of the year are noticed.

Proceedings of the Fourteenth Annual Meeting of the American Society for Testing Materials, held at Atlantic City, N. J., June 27, 1911. Volume XI. Cloth, 890 pages, 6 in. x 9 in. Edited by the secretary and published by the Society, University of Pennsylvania, Philadelphia, Pa.

This large volume shows the growing importance of the Society for Testing Materials, and indicates the extent of the business transacted at the last meeting. In addition to the usual committee reports on various specifications for iron, steel, cement, paints, protective coatings, etc., there are quite a number of important papers giving the results of special investigations. Among those of more special interest to railways are: The proposed specification for steel wheels; the heat treatment of steel axles; revised specification for locomotive cylinders; and the tempering of spring steel. The principal individual paper is an elaborate article covering 100 pages on the structure of steel by the president of the society, Henry M. Howe. There is also an interesting paper by A. S. Cushman on the manufacture of pure iron in open hearth furnaces. This material has been defined as one which contains less than .03 per cent. carbon. A very original investigation is reported by A. E. Outerbridge on Florescent Tests of Oils. There is also a series of papers on hardness in metals. The volume is well printed and thoroughly indexed.

Letters to the Editor.

AGENTS' REQUISITIONS FOR STATIONERY.

Ottawa, Ont., March 27, 1912.

To the Editor of the Railway Age Gazette:

The short article on this subject by a "clerk in the superintendent's office" in a recent issue of your paper (February 16, page 286) is amusing in that it shows how much thought a man may give to a matter, and yet find no means of improving it because he does not see that the method that he has always followed has always been wrong, and that instead of trying to improve the method it should be discarded, and a new one adopted.

The clerk in the superintendent's office remarks with delightful naivete that one road checked the agents' requisitions three times, and that, no doubt, as good results would have been obtained by one checking. He came close to the light there, but still remained in utter darkness. If he had stopped when he came to the fact that three checks, or ten checks, were of no benefit, and found out why they were not, he would have seen the light, and would not have gone to the trouble of outlining a new form, and saying "if this is used right it will be all right" or words to that effect. But his form is just as useless as all other forms in use, because the same men who filled in the old forms would fill in the new. And the reason the three checks were of no benefit was because they were made by the wrong man or men. There is only one man on any railway who can intelligently check a stationery requisition, and that is the man who fills them, and he can't do it today because he has not been allowed to do it. So there is really no man today who can do it. The superintendent's clerk could qualify for the job, but it would take him some time, and greatly increase the work in his office. Why should he do it when his company is already paying another man who can more quickly qualify, and then do it much better?

Here is the situation: to qualify for the job of intelligently checking the agent's requisitions, the superintendent's clerk must first acquire a good working knowledge of the stations on his road. Then he must classify them according to their importance and the number of men employed in each, the volume of business done, etc. Then he must view each requisition carefully with a picture of the station in his mind, allowing what he knows is required. Then he must keep a copy of that requisition on file, and next month check the requisition by his general knowledge of the station and the requisition for the previous month. In six month's time, if he does this carefully, he will be doing it intelligently. There is no other way for him, and he must not shirk his duty; he must do it carefully all the time. But he won't do it carefully, simply because he is human, and no human being ever has done or ever will do a thing carefully that he considers of secondary importance to many other things he has to do.

The man who can quickly qualify for the job is the stationery man. In the first place, the stationery is his business, first, last and all the time. As he is situated all he needs to do is to acquire a knowledge of the stations he is supplying and classify them. The remainder he now has in his own hands. And don't forget that until he does this he is not doing the work he is paid to do. Today he is doing part only. One end and the middle, the receiving and caring for, he controls. But the other end, the issues, the end that controls all the rest, he has nothing to do with beyond sending out what these thrice and uselessly checked requisitions call for.

This seems so plain to me that I cannot understand why there should be any discussion on it. Why send a requisition to a man for approval, when that man has no knowledge by which to check it?

Let us take the example the "clerk" has given us of the case where a small agency was found with six quarts, or two years' supply, of ink on hand. Who would refuse to pass a requisition for such a necessary thing as a quart of ink? Is there any man from the president down who could do this except the stationery man, the man who knows the class of the station and who sent the previous supply of ink? This applies to all items.

One who has filled requisitions.

POOLING OF EQUIPMENT.

Houston, Tex., February 9, 1912.

To the Editor of the Railway Age Gazette:

The question of car service rules rivals the ghost of Banquo, the late lamented Peter Grimm and the proverbial "good man" in its refusal to be kept down.

The latest rattling of the skeleton is the recent decision of the Interstate Commerce Commission (Opinion No. 1,693) in the Illinois Central coal case.

The commission in its ruling lays down a postulate that might be geometrically expressed, "All railways are the same railway," and having thus applied its mathematical fingers to the tip of its analytical nose and gravely wiggled them at the shade of the Hon. John Sherman, whose name is honored by its ancient connection with a well-known legal weapon that has in these latter days become at once a delight to the demagogue and a menace to the monopolist, the commission solemnly warns the roads that they must "get together" on the question of car supply, and that in the event of the failure to so assemble, it will be the painful duty of the august commission to constitute itself a proxy for the purpose of bringing about a "community of interest" in the matter of providing "means of transportation," particularly cars, to the satisfaction of the clamorous shipper.

Which is to say, either the railways must provide efficient and sufficient rules to insure the free circulation of freight car equipment, or the commission will provide such rules and will see that they are enforced.

There is a large class of transportation men who pin their faith to the application of existing rules, and who insist that the solution of the problem lies in strengthening the car service rules by including them in the per diem rules agreement and thus making them a part of a binding contract. The advocates of this policy reject the "panacea" of "equal interchange," "zone pool," and "general pool," and assert that the benefits claimed for these methods are visionary. They say it is absurd to suppose that a corporation will turn over the control of its property to some person or persons not answerable to its stockholders. Further, that there is absolutely no economy in the way of empty haul or switching expense to be effected by the common use of freight cars; that a loaded movement presupposes a return empty movement, either partial or entire, according to the traffic, and that the loaded mileage must eventually be equalized by an empty haul, whether the cars are owned individually or pooled.

It is rather curious that among those most opposed to the pooling of equipment are large systems that have pooled the cars of their constituent properties and seem to justify in practice what they condemn in theory. True, a pooling of "system" equipment does not permit the control to pass from the duly authorized representatives of the stockholders, etc. But what about the "control" over the 45 per cent. of owned equipment that is off the lines of these same carriers practically nine months of the year? And if there is no saving in empty haul under a pool plan, why does a road with a straight line of 1,000 miles hold on its eastern and western divisions cars of system ownership returned or made empty in those territories, while cross-hauling empty cars, west or east, as the case may be, to effect delivery to the foreign lines owning them. And would control over the corporate property by a political body be any less irksome than control vested in a committee or commission composed of railway men?

But it is not my purpose to repeat the many arguments that

are advanced on the two sides of the pool question. I merely wish to point out what seems to me will be the result of a failure on the part of the railways to act on the suggestion of the commission in its ruling No. 1693.

The commission has ruled that a road cannot refuse to allow its cars to be loaded off its rails, and that the carriers must provide for rules that will protect the car owner.

It seems to me that we must be woefully shortsighted if we cannot foresee the first difficulty that would confront us were we to rely on a strict application of present rules as a solution of the difficulty. It is true these rules, if strengthened by inclusion in the per diem rules agreement might insure to a car owner a reasonably prompt return of his cars. But how about the road that is compelled to return the cars? Let us suppose a road having on its line a given number of empty cars of a certain class, and let us also suppose a shipper on the line of that road who has loading for those cars. Suppose, further, that the cars happen to belong to another railway, and because the road holding the cars is obligated by the rules to return to their owner these *particular identical* cars, they must be hauled empty past the shipper's full warehouse, the while he demands and pleads in vain for equipment to move his goods. Has not the commission said that "all railways are the same railway"? Is there any ground for the hope that the general principle that has been invoked to send a road's cars away from home will be abandoned the minute they are released, and the cars be permitted to scamper home, their task only half fulfilled? I trow not.

And, getting right down to brass tacks, would it be possible, even if it were permissible, to bring about an absolutely strict observance of rules that are opposed to the natural circulation of freight cars, and which tend to limit their efficiency?

It has been some ten years since the effort was begun to influence the movement of cars by the application of per diem charges, and we have seen these charges run the gamut from 20 cents to $1 (penalty included), and back again to 30 cents, the theoretical cost of owning a car; but is there any one who will attempt to demonstrate that any particular per diem rate has had any particular result on car movement, especially to secure the return of a car to its owner when needed, or to prevent its return empty when no longer required?

Unless it is practically nothing per day the per diem rate cannot be made low enough to keep foreign cars from pointing their prows toward the lines of their owners in a mad home rout when their usefulness has been temporarily outlived. "Leave them alone and they'll go home if you put per diem behind them."

And, per contra, we cannot conceive of any probable per diem rate that will be high enough to discourage the use of a foreign car when it is needed for business that is in sight. Not even the daily earnings of the car would prove a penalty strong enough to prevent the use of foreign cars in some cases, while there are numerous instances in which the carrier is practically helpless to stop the misrouting of cars by shippers to whom they are given for loading.

To get back to the commission's "one railway" idea, can you name a large system on which the distribution officer depends on either car service or per diem rules to work his cars to the divisions or stations where needed, or to hold them stationary when business falls off?

Does it not seem that the next logical step in rule framing is toward a recognition of the rule laid down by the Interstate Commerce Commission? So far as the actual practice is concerned this rule has been followed for years, with the possible exception of the ridiculous cross haul of empties that characterizes every slight recession in traffic.

Unfortunately, however, the application of the rule has been absolutely without regulation, and as a natural consequence some have profited while others have suffered.

Are the railways going to provide the regulation themselves, or will they cling to the remnants of the old-time methods of car handling until they have forced upon them the "regulation" so strongly hinted at in the commission's recent decision?

TRANSPORTATION.

IDENTIFYING APPLICANTS FOR EMPLOYMENT.

ST. LOUIS, MO., March 1, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

During the rush periods on the railways from one-third to one-half of the men filing applications for employment give fictitious names, for one reason or another. It is very easy for a bad man to assume the name of some good man whom he knows to have been recently in the service at a remote place and to have quit, or, to assume the name of some other man, under still different circumstances, without detection. In some cases men engaging in the saloon or other business, with previous railway experience, will voluntarily lend their service certificates to others. In this way many undesirables get into the service.

It would be entirely practicable at employment stations to keep kodak pictures of applicants. Three pictures should be developed; one for the application, one for the employing officer's gallery, and one for the superintendent's office. Each should have the man's signature attached, so that when a new man entered the service the clerk to the subordinate officer and the application clerk in the superintendent's office might immediately go to the list of photographs before attempting an investigation of the application.

Under such a scheme a man's picture should be held on file from three to five years, so as to put a practical limit on the working gallery. This would successfully guard against the reemployment of objectionable men, whom the railways, as well as officers of the labor organizations desire to have weeded out of their respective ranks.

There are a sufficient number of good, conscientious, competent men to supply the railways with the right kind of employees, and the labor organizations with respectable membership. Men who habitually persist in doing wrong should not be trutsed in responsible positions; in positions where they are a menace to the interest of the railway and to the safety and standing of brotherhood men having good intentions. It is a criminal imposition on passengers, railway owners and trustworthy employees to be subjected to the work and conduct of incomeptents, drunkards, liars, thieves and other such like.

This fraud is continually growing. The more often it is worked successfully the more often it will be attempted. It seems to me that it is growing, proportionately, more rapidly than the number of railway employees is growing.

There should be more certainty on the individual railway, and more uniformity as between all of them, in taking applications, towards guaranteeing that candidates for employment give their correct names. For a man to give an alias in seeking employment, under any circumstances, must be illegal, therefore, it is fair, just and lawful for officers to take steps towards the enforcement of such a guarantee.

CHARLES BURLINGAME,
Supt. St. Louis Transfer Ry.

The Salta to Mejillones Railway, Chile, has secured funds for the construction of its line and work will be pushed forward from the Chilean and Argentine termini as rapidly as possible. The construction work on the Argentine side will start from Cesrilios in the Lema valley and at Mejillones on the Chilean side. A branch line will be built to Chimba, Chile. The cost of the railway is estimated at $20,000,000. The Argentine government has granted a subvention to the road amounting to $250,000. In Chile the line will afford transportation to the sulphate region near the Laco mountain, traverse the Emilac pass, and enter the nitrate zone of Augusta Victoria.

DEFECTIVE BOX CARS AND DAMAGED FREIGHT.

Extent of Loss for Which Condition of Equipment is Responsible and How It May Be Materially Reduced.

I

The Interstate Commerce Commission statistics for the year ending June 30, 1909, show that the railways in the United States, except for the very small ones, paid out $24,754,508 for loss and damage to freight; or $1.58 was paid out in this way for every $100 of operating expense. A railway is only liable for loss or damage to freight when it can be shown that it is due to a fault of transportation. Logically, therefore, the investigation and payment of claims should be in the hands of the operating department. Measures should be taken to overcome the cause of the failure, or defect, and not to treat the effect, as is ordinarily the case where the claims are handled by a claim department, which is an adjunct to the traffic or accounting department. With this in view the operating department of the St. Louis & San Francisco Lines undertook the handling of claims for loss and damage to freight in 1909, with the result that a large decrease has been made in the amount paid out for loss and damage, largely because the source of the trouble has been located, and in many cases eliminated. For instance, the operating freight revenue has increased more than 17 per cent. for the three years ending June 30, 1911, and the amount of loss and damage has decreased 24 per cent. in the same time.

One fact which has been clearly revealed by the studies which have been made on the Frisco is that a considerable portion of the damage and loss to freight is directly due to defective equipment. This may be seen by reference to the accompanying table, showing the amount of damage due to various causes for a period of four years, or one year longer than the present method of handling claims has been in use. For instance, in the year 1911, $43,160.09, or 8½ per cent. of the amount paid out for damage and loss to freight could be directly traced to defective equipment. Stated in another way, $2 was spent for damage due to defective equipment for every $100 which was paid out for the maintenance of freight equipment.

CLASSIFICATION OF DAMAGES TO FREIGHT; ST. LOUIS & SAN FRANCISCO LINES.

Damage due to—	1908.	1909.	1910.	1911.
Robbery	$131,788.43	$86,823.37	$86,894.76	$70,828.37
Rough Handling	130,459.17	94,263.44	105,386.40	123,745.49
Delay	136,037.83	111,864.64	91,153.13	79,094.99
Defective Cars.	44,661.04	40,572.32	53,603.98	43,160.09
Wrecks	76,751.40	38,181.48	26,705.36	52,312.92
Miscellaneous...	145,277.49	136,567.53	142,741.57	136,180.92
*Total	$664,975.36	$508,272.98	$506,485.20	$509,495.15
Revenue from Freight	$23.976,296.87	$25,262,515.93	$27,645,863.48	$28,071,781.86
Maintenance of Freight Cars...	1,734,161.91	1,536,133.62	2,018,268.72	2,078,078.97

*Exclusive of fire.

Fig. 1—How Much Was the Lading Damaged When This Bumping Post Was Distorted?

However, the damage due to defective equipment is very much larger than is indicated by these figures. A considerable part of the damage due to robbery was undoubtedly caused by the lack of burglar proof cars. Damage charged against rough handling was in many cases increased or was entirely due to poor equipment, and there is also no question but what many wrecks may be traced to the same cause. Assume that a car with a weak end construction, or even one with the standard thickness of inside lining and ordinary end framing, was being placed in the yards when the rough handling indicated by the distorted bumping post, shown in Fig. 1, took place. If the inside lining or end should give way certain kinds of lading might be seriously damaged. Unfortunately an examination of the bumping posts in the freight terminal yards indicates that this sort of handling is not infrequent. The despatcher's train sheet on some roads has a column which must be filled in by the despatcher, showing the amount of excess wages which are paid to crews due to the trains being delayed beyond schedule time. A suggestion has been made that workmen in the shops would be far more careful if they were furnished with statements of the exact cost of any work which they spoiled. A good effect might also be secured if the shifting crews were furnished with statements of the damages done by them on the preceding day.

It will also be noted that a large amount of damage was charged to miscellaneous causes, and it is quite probable that some of this was primarily due to defective equipment. Then, too, the actual loss in money is only a small part of the problem. The shipper, even if he is paid for the full value of the damage to the goods, is not fully compensated. His business is affected by the failure to deliver the goods properly and a spirit of criticism and antagonism is often generated, which may result in a lack of co-operation and sympathy on the part of the shipper, and to legislation, which not only hampers the railways but is unfair to them.

Because of the earnest efforts which have been made by the Frisco to reduce the amount of the claims the figures for that road are probably more favorable than they would be on many others. For instance, the ratio of all claims paid on the Frisco lines, exclusive of damage caused by fire, to the revenue from freight for the year ending June 30, 1908, was 2.85 per cent.; while for the year ending June 30, 1911, it was only 1.85 per cent., or a decrease of over 35 per cent. The ratio of the damages and losses directly traceable to defective equipment to the freight revenue was .18 per cent. for 1908, and .15 per cent. for 1911, or a decrease of 16 per cent.

The most serious losses chargeable to defective equipment are caused by leaky roofs; by doors which are not cinder, water, burglar and grain leakage proof, and to other defects, such as weak ends and defective sides and floors. It is believed that if the seriousness of these losses were really understood radical measures would be taken to put the equipment in such shape that they would be practically entirely eliminated. Too much attention is paid to keeping the first cost and the weight of the cars to a minimum and too little attention is given to making the box cars so that they will protect the contents from loss and damage. There is no question but that the mechanical defects responsible for this loss and damage can be largely or entirely overcome.

The series of artieles, of which this is the first, will go into this

matter fully, illustrating and commenting on the defects which cause such loss and damage, and in every case suggesting a remedy for it. It will be shown that a satisfactory car can be built at a reasonable price, not only causing a reduction in the damage and loss to the lading, but at the same time reducing the cost of maintenance of the car. Why, then, is the equipment on many roads in such unsatisfactory condition as concerns the loss and damage to freight, and why are new cars turned out of the builders' shops in an unsatisfactory condition from this viewpoint? Possibly for two reasons; first, the seriousness and the extent of the damage is not fully realized, because the claims are handled by a department which is remote from the operating and mechanical departments, the tendency being to treat the effect rather than the cause. In the second place, if a road considers the problem of going to extra expense to provide satisfactory equipment, it is quite liable to be influenced by the fact that half of the equipment will be off its own lines all the time and that other roads will be securing the benefit of it, while the road which goes to the extra expense will be using its neighbor's defective equipment.

To overcome this and to secure the thorough and hearty co-operation of all the roads E. D. Levy, assistant general manager of the Frisco, suggested at the June, 1910, meeting of the Association of Transportation and Car Accounting Officers at Colorado Springs, Colo., that the American Railway Association form a bureau in charge of competent men who shall pass upon the design and see that all new equipment is so constructed as to prevent loss and damage to the freight, and that the roads at large take the proper steps to improve their equipment as it goes through the shops or repair yards for heavy repairs. The bureau would, of course, have to have a corps of inspectors, and provision should be made for the enforcement of the rules and regulations formulated by it. Its work would be similar, in many respects, to that of the bureau of explosives.

Some idea of the importance and extent of the work which could be accomplished by such a bureau will be gained from the study of the defective box cars which follows. The first problem considered, to which the remainder of this article is devoted, is that of the ease of pilfering from many box cars because of the lack of burglar proof fastenings for the side doors.

PILFERING.

A great many box car doors are fitted with bottom shoes or guides at the rear end of the door, when it is closed, which may easily be removed, allowing the door to be sprung open without breaking the seal, and thus making it possible to remove a part of the contents of the car without leaving any evidence that it was broken into, or where the pilfering took place. If the packages are not broken into but are removed entire, leaving no evidence of pilfering inside the car, the assumption is, when the articles are reported missing, that they were loaded in the wrong car or otherwise went astray. Employees who steal from the cars usually know enough to remove the entire package, leaving no traces of pilfering. There are several types of burglar proof door shoes on the market, but in spite of this many cars of recent construction will be found in service which are defective in this respect. It is only necessary to use the burglar proof shoe at the rear end of the door, as the front end cannot be sprung open without breaking the seal.

A car equipped with an ordinary type of guide, which is not burglar proof, is shown in Fig. 2. Ordinarily the three bolts which fasten the shoe to the car pass through the side sill and the nuts are on the inside of the sill. In such cases it is only necessary to remove two of the nuts and push the bolts out, allowing the shoe to slip down, as shown in Fig. 3. In the case illustrated, however, the bolts were passed through the sill from the inside and the nuts were placed on the outside. It was only necessary to remove two of the nuts and push the bolts back with the end of a hammer handle. Although the door shown is only 5 ft. 6 in. wide, it was an easy matter for one man to spring out the lower corner of the door, allowing the other one to climb inside, as shown in Fig. 4. It was a matter of only a few minutes, less than five, for the man to loosen the shoe, climb inside the car, get out and replace the shoe. The seal was not broken or interferred with in any way, and there was absolutely no trace left of the car having been pilfered. An enlarged view of a shoe similar to the one used on this car is shown in Fig. 5. In this case the shoe is held by a lag screw at the bottom and two bolts at the top, the nuts being placed on the outside, as shown.

A door with a slightly different type of shoe or guide, but hav-

Fig. 2—An Easy Door to Open Without Tampering with the Seal.

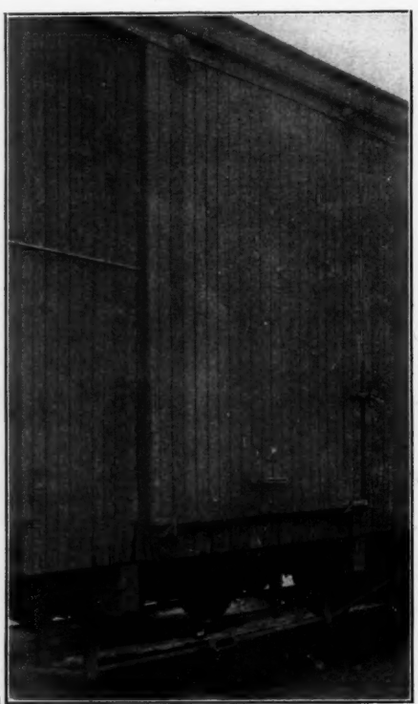


Fig. 3—Rear Door Shoe Loosened and Dropped Out of the Way.

Fig. 4—A Man in the Act of Entering the Car; Seal Undisturbed.

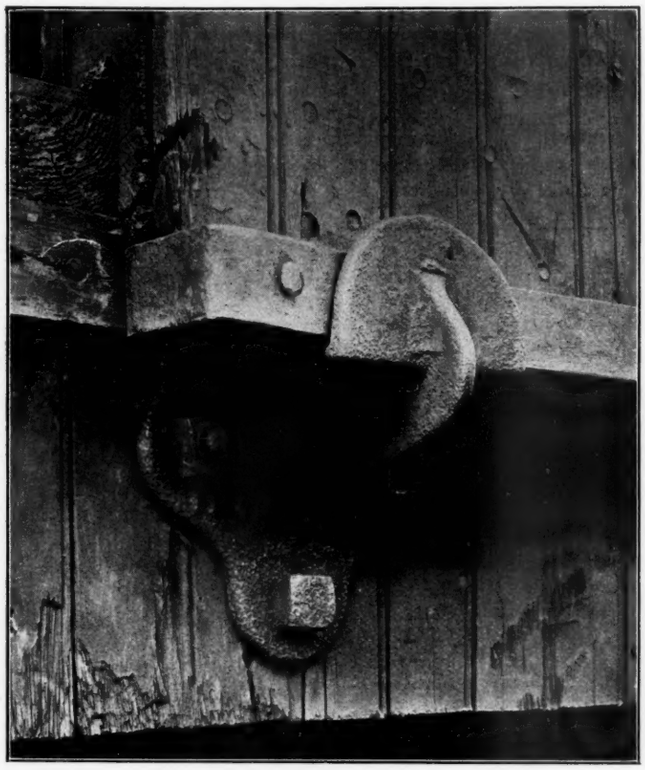


Fig. 5—Not a Burglar Proof Door Shoe.

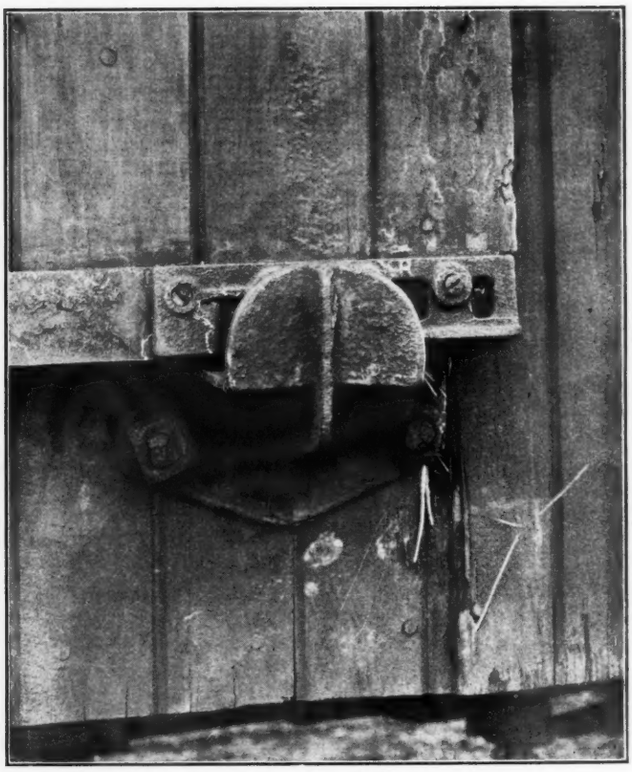


Fig. 8—Type of Shoe on Door Shown in Figs. 6 and 7.

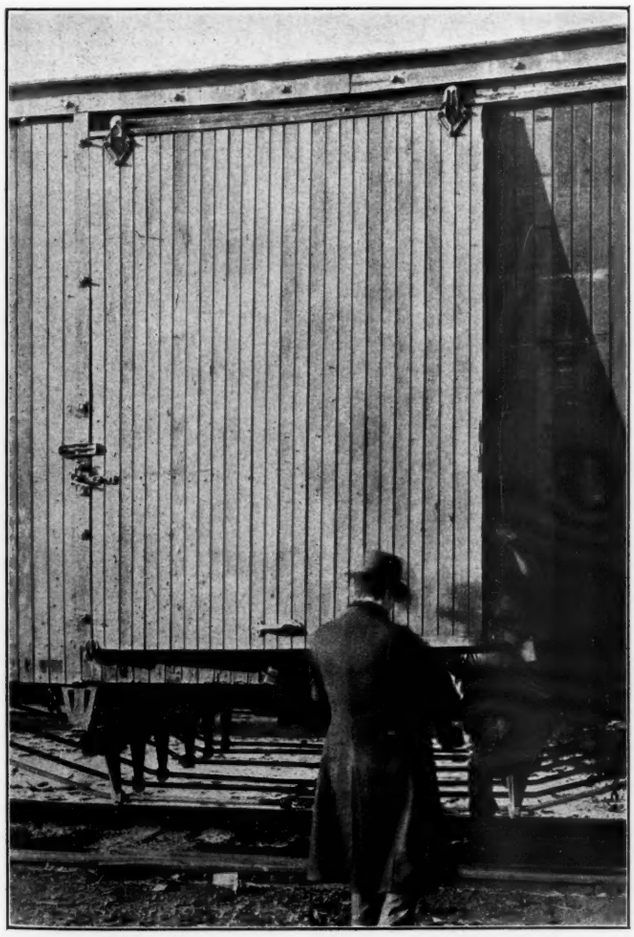


Fig. 6—Entering Another Box Car Door Without Breaking the Seal.

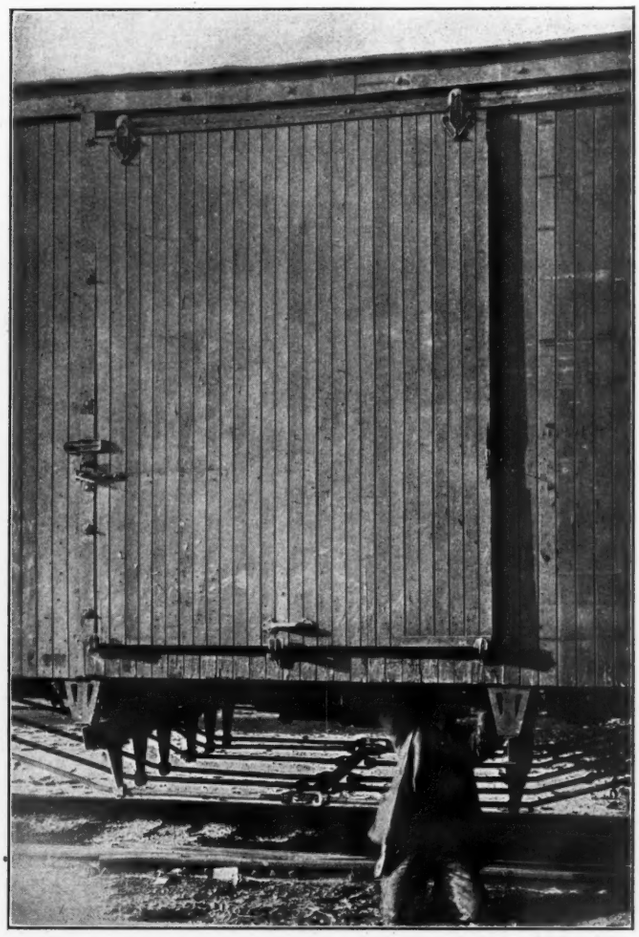


Fig. 7—Door Shoes Being Replaced, Leaving No Evidence of the Door Having Been Opened.

ing three of them, one at each end and one at the middle, is shown in Figs. 6 and 7. Each one of the shoes is held by two bolts, the nuts being placed on the inside of the side sill. It was only necessary to remove one bolt on each shoe and allow the shoes to swing downward. The door was 6 in. wider than the one shown in Figs. 2, 3 and 4, and the man had no difficulty in climbing inside with the assistance of a confederate, who held the door back. One of the men is shown in the act of replacing the end shoe in Fig. 7. The seal was not tampered with in any way and no evidence was left that the car had been broken into The entire operation, from the time the man started to loosen the first bolt until he had replaced the shoe after climbing inside the car, and after five exposures had been taken with the camera, was a little less than five minutes.

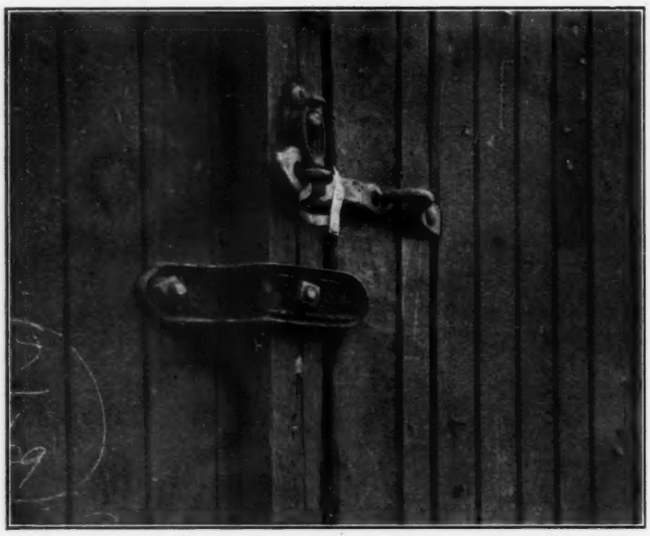


Fig. 9—A Poor Door Fastening.

There are several door shoes or guides on the market which are burglar proof, or at least cannot be tampered with without damaging the car and leaving unmistakable evidence of its having been entered; any practical car department officer or foreman is familiar with them. While they cost more than the type of door shoe shown in the illustrations, the additional expense is not very great. Moreover, it is only necessary to use one of the burglar proof shoes per door, and that should be placed at the end opposite the seal. With a proper door fastening it is impossible to open the door at the front end without breaking the seal,

Fig. 10—Forcing the Hasp Hook Out.

There are, however, a great many doors in service which are fitted with fastenings similar to the one shown in Fig. 9. It is a comparatively simple job to open one of these doors without disturbing the seal in any way, without removing the door shoes, and without leaving any evidence of the fastenings having been tampered with. The way in which this is done is shown in the series of illustrations, Figs. 10 to 14, inclusive. The pointed end of a car repair bar is slipped under the hook, a block of wood being used as a fulcrum to pry it open, as shown in Fig. 10. In this case the first block was not thick enough and a second one was slipped under the bar, as shown in Fig. 11. The door was pried open after the hook had been forced out, as shown in Fig. 12, but the burglar was sadly disappointed, for instead of the car containing whiskey or tobacco it was loaded with company material, consisting largely of cast iron car wheels.

Fig. 11—Hook Forced Out; Door Can Now be Pried Open.

Fig. 12—Door Opened Without Breaking the Seal.

After looking over the contents of the car the door was closed, as shown in Fig. 13. A slight blow of the hammer drove the hasp back, so that the hook slipped into place and a good blow on top of the hook drove it home, as shown in Fig. 14; there was absolutely no evidence left of the lock having been tampered with.

There is really very little excuse for not making the doors bur-

glar proof as far as the employees are concerned. It is always an easy matter to break the seals, but employees will not take this risk. The seal records are taken so frequently that it is always possible to locate the approximate point at which a seal was broken, and thus trace the culprit. There is little excuse for using either door shoes or door hasps which can be manipulated, as shown above, without leaving traces of the robbery. Where the

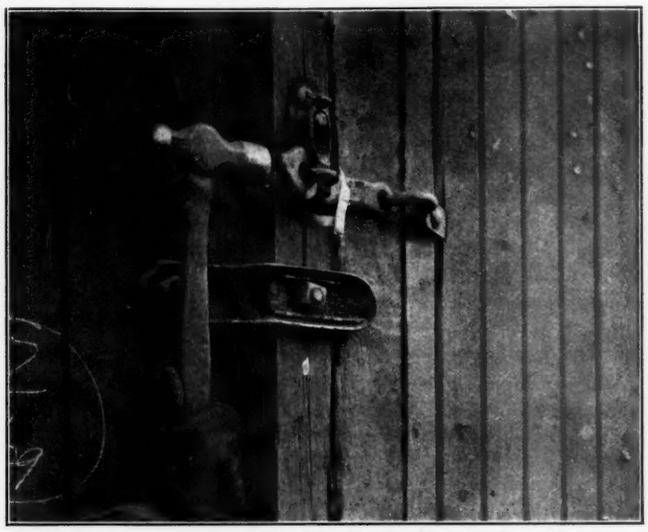


Fig. 13—A Blow on the End of the Hasp and One on Top of the Hook Completes the Job.

car can be tampered with in this way—leaving no evidence of its being entered—the railways are put to considerable unnecessary expense in trying to trace the shortage. A large part of the pilfering is done by employees, and if this can be eliminated and other pilfering can be traced, due to the breaking of the seal or damage to the door or its fixtures, the amount of claims for lost and damaged freight can be greatly reduced. There is no need of

Fig. 14—Car Door Closed Again.

illustrating or giving the trade names of burglar proof door shoes or fastenings, because of the number of such devices which are available and which can readily be used at no great expense if those in charge of designing and building the cars will awake to the necessity for providing them. A burglar proof box door will, however, be illustrated in the next article in connection with another phase of this subject.

(To be continued.)

AN INTERESTING RATE DECISION BY THE CANADIAN RAILWAY COMMISSION.

The Canadian Railway Commission recently rendered a decision in the case of the Dawson Board of Trade versus the White Pass & Yukon Route, operating railway, steamship and stage lines in Alaska, British Columbia and Yukon Territory, rescinding an order of January 18, 1911, which reduced the freight and passenger rates on the rail division between Skaguay, Alaska, and White Horse, Yukon Territory, by 33⅓ per cent. Although a portion of the route is in Alaska, the commission had reduced the rates on through traffic as well as on local traffic between points on a portion of the road in Canada.

The case, which had been before the commission for about five years, is especially interesting in that it involved many points almost exactly similar on a small scale to points involved in the railway situation in this country, and the opinion rendered by Chief Commissioner J. P. Mabee, indicates an attitude toward railway regulation on the part of the Canadian Board somewhat different from that which has often been displayed by regulating authorities in the United States. The final order was entered after a rehearing of the entire case, the reduction of the rates required by the first order being postponed after the company had appealed to the Governor-General-in-Council and after the railway company had introduced much additional evidence. Two of the railway commissioners had personally inspected the railway and the chief engineer of the commission had made a complete physical valuation of it.

Preceding the rehearing of the case, O. L. Dickeson became vice-president and general manager of the White Pass & Yukon, and later president. The previous management, says the chief commissioner in his opinion, had contested the jurisdiction of the commission at every step "and some years' delay, during which the companies were making large profits, was successfully accomplished by these tactics. The books of the companies were kept at Skaguay, and excuses were made for not bringing them within the jurisdiction of the board. They were placed at the disposal of the board's chief traffic officer at Skaguay for inspection, but in the light of subsequent developments, most material features of the companies' operations and system of bookkeeping were suppressed, and have only subsequently come to light, I understand, through disclosures made by discharged officials of the company. References to these matters do not materially assist in determining what is proper now to be done, but these developments show reasons why the then management of these companies regarded an investigation into their finances with a jealous eye; and little wonder that, while the management had secret accounts in the books showing the payment of hundreds of thousands of dollars by way of 'refunds,' as they were called, although in truth they were 'rebates' in most part, no more assistance would be given to the board in its inquiry than was absolutely necessary. However, the management is changed, and since the spring of 1911, when Mr. Dickeson became the general manager of these companies, the board has no reason to suppose that the law has been violated, but, on the contrary, has every reason to suppose that he has endeavored to operate the rail division in accordance with the requirements of the law."

During the hearing of the case the complainants sought to make much of the rebates mentioned in the opinion. But this phase of the question was quickly disposed of when Mr. Dickeson promptly produced a book containing the record of the payment of refunds and rebates covering a period of 10 years. After announcing that the record contained dates, amounts and names of the recipients, Mr. Dickeson said that he had no objection to its introduction as evidence; but the complainants, many of whose own names appeared in the accounts, appeared to lose interest in the subject when the specific facts were produced, and the record was not received as evidence! It appeared that the majority of the rebates had been paid during the years

before they were made illegal and that, contrary to the history in this country, they had been paid mainly to small instead of large shippers, as an offset to competitive underselling by the latter.

In appealing from the order reducing the rates, the company had presented its confidential statement for the year 1910, showing gross earnings on the rail division of $752,879. Reducing this by one-third would have given $506,727, leaving, after the deduction of $438,377 for operating expenses, a surplus of $68,350 to pay $195,911 interest on bonds, or a deficit of $127,560. At the rehearing it was shown that in 1911 the companies had earned $149,700 less gross than during 1910, although the rates were the same, the deficit having been caused by a general decline of business. Over 7,000 tons less freight had been moved, and after a large reduction had been made in operating expenses by a reduction of forces the company was able to pay a dividend of only 1 per cent. for the year. The opinion continues:

"Many more matters could be recited that have been placed before the board upon the hearing to show that the order of January 18 could not be put into effect; but sufficient has been said to make it clear that the reduction in rates then directed would be an outrage upon the stockholders in these railways. In the earlier years, when the Yukon was not only prosperous, but booming, these railways were profitable, and then was the time for rate reduction. Had the management been as economical then as now, with the large earnings in those days, no doubt substantial reductions could have been made without hardship upon the stockholders; but this matter can be dealt with only upon conditions as they exist today. It was urged that the stockholders, in stock and cash dividends, had been repaid all the moneys originally invested. There is nothing, however, in this argument, even if such were the fact; profitable rates in the past are no argument for present-day reduction, without regard to all existing conditions, and even if stockholders in railways have, during a period of years, been repaid in dividends the sum total of the original investment, this forms no reason why they should not continue to receive a fair return upon the capital invested.

"It will not be thought that this matter is being considered solely from the standpoint of the stockholders in these railways. It is not. The board is alive to the burdens of the freight rates upon this route upon the people of the Yukon, and the record is full of high-handed and unreasonable treatment of the public by those in charge of the operation of these companies. It would gladly interfere, and require very substantial reductions, were that course at all reasonable or possible. It is clear that these companies are bordering upon receivership, and it is not in the interest of either the public, or those whose moneys are invested in these enterprises, that any action of the board should force them into that position. It is of great importance that not only the people of the Yukon, but for that matter that the people everywhere, should be protected from extortionate or unreasonable transportation charges; but to my mind it is of equal importance that the capital invested in transportation companies should be permitted to earn fair and reasonable dividends. Railway construction in Canada depends entirely upon outside capital; thousands of millions must be borrowed within the next generation or two. We have in Canada less than 30,000 miles of railway, as against more than 235,000 miles in the United States. Within fifty years Canada will require a greater railway mileage than now exists in the United States; the money for the construction of this must, for many years at least, largely come from abroad; and how long would these investments continue if it were known that their earning power might, at any moment, be terminated by the intervention of this board? While our duty to interfere and reduce rates in all proper cases is plain, surely it is equally clear that we should not require a reduction where the effect would be to prevent the investment earning a fair return."

In dealing with this feature of the case the commission desires to be understood as referring only to the money that was honestly invested, because the stock is held entirely by the original builders of the railway and has not passed into the hands of the general public. The physical valuation of the rail division made by the board's chief engineer, Mr. Mountain, showing a cost of $5,932,474, or $48,738 per mile, is then cited and the commission says:

"The statement furnished by the companies puts the original cost at $62,000 per mile. This includes a profit of 15 per cent. to the construction company, $90,000 for the Dyea Trail, $85,000 for the White Horse Tramway Company, and some other smaller items which Mr. Mountain does not think should form part of the capital account. Another item that went to swell the cost of construction was the expense and loss by reason of the continual disorganization of the construction gang by their stampeding to placer mines that were being discovered. Mr. Mountain thinks the road could be duplicated for $50,000 per mile, but does not desire to go on record as saying that original construction did not cost $62,000 per mile. It does not, however, become necessary to decide which should be the proper sum, in view of the lean earnings. It is altogether likely that the stockholders would, in the meantime, be glad to obtain an earning of, say 4 per cent. upon Mr. Mountain's valuation, were that possible. Taking the average dividends paid from the beginning of operation, the shareholders have not realized more than about 6 per cent. upon their investments; from now on, unless the traffic increases greatly, even at present rates, the earnings must be of a nominal character only.

"It may not be improper to advert to some of the conditions under which this road is operated. In the first place, there are only about four or five months of the year that there is any freight moving. From November to May there is a large annual loss in operation. Mr. Dickeson said that only during July, August and September could a surplus above cost of operation be earned. In November last, there was a loss of $36,000. Speaking on December 6, Mr. Dickeson said:

" 'Last year's figures show, worked out by days, that we ran the train fifteen days without a single passenger or a single pound of freight. We had three engines back of a snow-plow, plowing snow forty miles with three crews and a rotary crew of nine men, and about sixty men to keep the right of way clear for the purpose of handling a mail sack locally between Skaguay and White Horse with weather all the way from 20 to 40 deg. below zero.' "

Some substantial reductions both in freight and passenger rates which Mr. Dickeson voluntarily agreed to put into effect at once if the order was rescinded are enumerated with the following comment:

"It will be seen from the foregoing that reductions are made that in no event could the board order, and are directed upon the lines of assisting mining development.

"The board has been strongly impressed with the argument that if it enforced the order of January 18, 1911, or even made it more drastic, it would work to the advantage of the companies in attracting additional traffic to this route; that it would assist in developing the country, and form an inducement to prospectors and miners to explore and make investments. How this might be is a matter of opinion. If the earning capacity of these roads was cut in two, and the traffic did not increase, the result would be that the board would have wrecked the capital invested, forced the companies into receiverships, and probably done the country and the people irreparable harm, to say nothing of the perhaps greater question of shaking the faith of the investing public in Canadian securities. It might be that the reductions demanded would cause increased traffic, although, at the moment, I am at a loss to see where it would come from. White Horse and Dawson are no more stagnant than Skaguay, and its degeneration is not to be laid at the door of the White Pass companies; at any rate, it is much easier to advance arguments of this kind than to take the responsibility of putting these claims in the form of a concrete order. I am not pre-

pared, upon all the information the board has, to assume the responsibility and risk attendant upon such a course.

"I am of the opinion that a great deal of the dissatisfaction that has existed in the Yukon over the rates and other matters connected with the White Pass route could have been largely eliminated had there been a more intelligent and less domineering management. I am also of the opinion that these interests, under the direction of Mr. Dickeson, will stand in better favor among the people there than they have in the past; at any rate, the better course is to give him an opportunity to develop certain plans he has formed for the improvement and advancement of the country.

"The board will retain the matter until the completion of the fiscal year of the companies; they will be asked to furnish detailed information of the year's operation, and further intervention will depend upon the result of such statements."

The board has since formally rescinded its order of January 18, 1911.

CAR DESIGN IN THE TECHNICAL SCHOOLS.

In an editorial on the Car Shop Apprentice in our issue of March 15, reference was made to special courses in car design which are now administered in several of the engineering schools. We have requested information as to the character of this instruction and have asked how many graduates enter the car departments of railways, and we have received the following replies:

Pennsylvania State College, Prof. Arthur J. Wood.—We have included in our course in railway mechanical engineering for next year, some time in steel car design, in the senior year. The time given to it will be approximately the equivalent of three hours a week for some one semester of 16 weeks. Three of our recent graduates in mechanical engineering have gone into the car departments of railways. One of these left the service of the company for other work; the second, I understand, has been doing special work in car design, and the third has risen to the position of foreman of a railway car shop. You ask what, in our position, would be the best way to interest technical graduates in car work. Personally, I do not feel that the technical course can give very much special training along this line. I believe the general principles for framing, especially for steel cars, and the general design of buildings, will give them as good a preparation to start with as we can hope for. I should not be inclined to favor too much over-specialization in car design in our college courses. I may state further that my impression is that it requires men of certain mental types and caliber for this work. Certain men will not be satisfied to remain indefinitely in car design, and my impression has been that few who have gone into that line have taken up construction work sufficient to warrant their advance to a position of great responsibility. We have here a locomotive, dynamometer car, latest E-T air brake equipment, electro-pneumatic switch and signal apparatus set up for instruction, axle lighting sets and car heating apparatus. This has been mostly the development of the last two years and promises to advance further in the near future.

Purdue University, Prof. C. H. Benjamin.—An outline of our course in car design is as follows: Each man is given an assignment, consisting of capacity, light weight and over-all dimensions, for some type of steel freight car. He is required to make the necessary calculations, shear and stress diagrams, and to logically design the following: Axle, springs, center plate, truck bolster, truck side frames, center and side sills with the necessary cross-carriers, and the brake system. Detailed drawings are required for all the parts designed.

The student also makes an assembled drawing of the truck, showing the details that he has designed, together with standard M. C. B. journal boxes and bearings, cast-iron wheels, etc. Finally, the complete car is assembled, showing the general plan and necessary cross sections.

In addition to the drawing room work, lectures are given on car heating and lighting, interchange rules, steel versus wooden construction as to repairs and costs, couplers, draft gears, brake shoes, manipulation and repairs of air brake equipment.

I can only give you the numbers of men entering railway service during the past five years. We have no means of knowing just how many of these are employed on car work. The special apprentices spend a part of their time in the car shop, and those men accredited to the car construction companies are probably all engaged in this work.

Special apprentices	15
Assistant master mechanics and mechanical engineers	4
Car construction companies	12
Assistant engineers of tests	5
Engineer of tests	1
Draftsmen of various grades	6
Roundhouse foremen	2
Material and machinery inspectors	9
General railway service	10

Some of the last class are inspectors, apprentices, instructors, etc. The small salaries at present paid in car shops are not calculated to interest technical graduates since they are as a rule lower than those paid for similar work in ordinary manufacturing plants.

University of Illinois, Prof. Edward C. Schmidt.—Such instruction as we give in car design to our students in railway mechanical engineering is included in a course called "Car and Locomotive Design," given to our senior students throughout their fourth year. This course has allotted to it nine hours per week throughout the year. Some of our other courses are related to it and lead up to it. Roughly, one-third of this time has been devoted to car design and the remaining two-thirds to locomotive design. None of the men who have graduated here in railway engineering have been or are now in the car department of any railway. One of them is with the American Steel Foundries, but I do not know whether his work is specially related to car construction or not.

We are trying to fit men for service in the motive power department, and I think there is nothing in the way we lay the emphasis on the various parts of our work to deter them from success in the car department if they chance to be interested in that work. The fact that none of our men have entered it is, I suppose, largely accidental, their opportunities happening to lie in other directions. Moreover, it is rather unsafe to generalize from the amount of data which we have at hand, because since the organization of the department we have not graduated a large number of men in railway mechanical engineering.

The Stevens Institute of Technology does not have any special course in railway mechanical engineering.

Cornell University, Sibley College of Mechanical Engineering, Prof. Dexter S. Kimball.—We no longer have a special course in railway engineering. We had such a course for a number of years, but when Prof. Hibbard, who was in charge of it, left the university the course was dropped. I would say that our attitude here in Sibley College is to lay a great deal of stress on fundamental training engineering, and less stress on the particular subject which the boy may expect to take up after leaving college. The engineering field has developed so rapidly that it is practically impossible to have special courses for all the various parts of the field. While on the other hand the growth of general engineering knowledge will make it necessary for all the engineering schools to either confine themselves very closely to fundamentals, or greatly extend the period of the college training. The latter is, of course, undesirable as students now go out into the field late enough in life, and we feel it is better to give them a sound fundamental training and let them acquire the details of their specialties in the field. Students, in some cases, do not know what portion of the field they will enter, and those who do and have their minds made up to enter certain specialties in many cases go into entirely different lines of work.

The University of Pennsylvania, Philadelphia, Pa., has no course in car design in the department of engineering, and the records of their graduates show that very few have entered the shops of railways or locomotive companies.

TWIN CITY-TWIN PORTS LINE OF THE SOO.

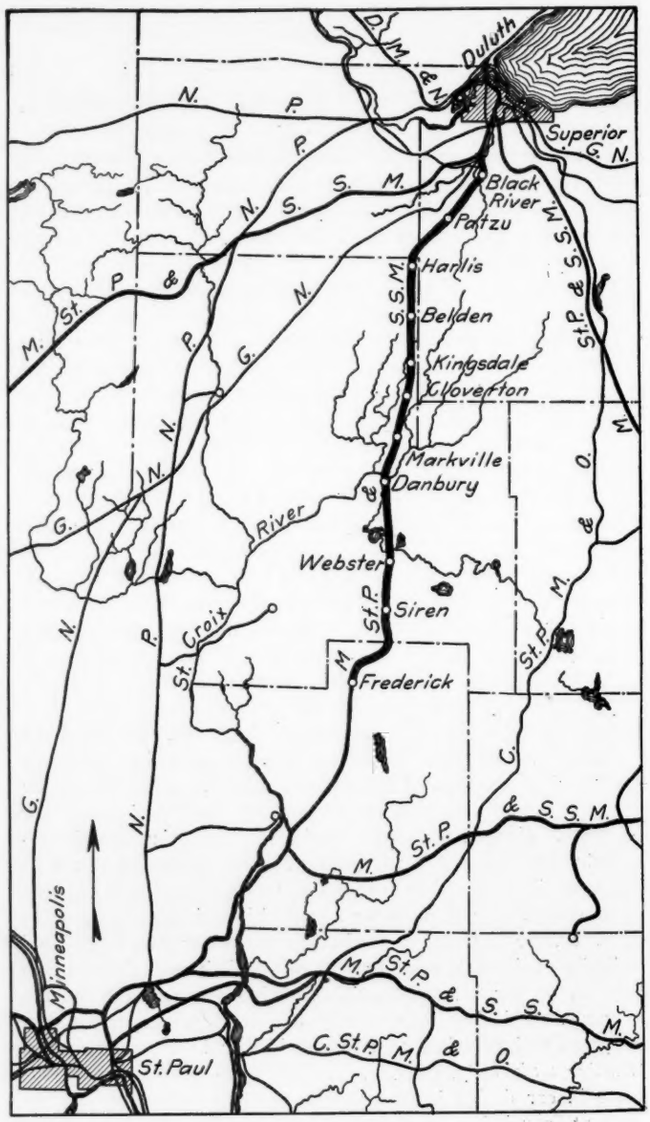
Construction of the Closing Section of the Direct Low Grade Route from St. Paul and Minneapolis to Superior and Duluth.

The Minneapolis, St. Paul & Sault Ste. Marie has just completed the construction of an extension from Frederick, Wis., to Boylston, just south of Superior, which is the closing section of a direct low grade line from St. Paul and Minneapolis to Superior and Duluth. The traffic between the industrial district tributary to the Twin Cities and the ports at the head of the lakes is very heavy and has become so desirable that four roads are now competing for it. Before the completion of the new Soo Line the Great Northern and the Northern Pacific had the shortest connections between these points, while that of the Chicago, St. Paul, Minneapolis & Omaha is considerably longer. The Soo Line entered the twin ports in 1909, first, by the completion of the Wisconsin Central extension from Ladysmith, and later, by the completion of the Brooten line, providing connection with its western system. Neither of these entrances, however, is so located as to furnish a direct connection from the Twin Cities to the head of the lakes and neither could compete on an equal basis with the shorter lines of the Great Northern and the Northern Pacific.

In the fall of 1901 the Soo opened a branch line from Summit, Wis., to Frederick, with the primary object of reaching a rich timber and agricultural territory. The possibility of extending this line to Duluth, however, was an important consideration in its construction. The distance from St. Paul to Frederick is 71.9 miles. The new line extends 73.2 miles to a connection with the Brooten-Duluth line at Boylston, 6.6 miles south of the Superior station. This makes a total length of 151.7 miles from St. Paul to Superior, which is shorter than that of any competing road between these points. Statements of relative distances between the Twin Cities and the Twin Ports are likely to be misleading, however, on account of the arrangement of terminals at both ends. For example, it can be shown that the Great Northern has the shortest line between Minneapolis and either Superior or Duluth, while the Northern Pacific has the advantage in distance between St. Paul and Duluth. These differences are all so slight, however, that the three roads can now be considered of equal length.

The location of the new line was begun in December, 1910, and most of it was completed during winter weather, which is the most desirable season for location work in the territory through which the line runs. Construction work was started in May, 1911, and was pushed to completion during the summer, the grading being finished about December 1, the bridge work about March 1. Operation will be begun early this season. The southern 50 miles of the line was built through an unbroken forest of mixed hard wood, pine, balsam and tamarack. Some construction camps had to be located at points at least 25 miles from the nearest railway station, necessitating heavy teaming to secure supplies. The summer during which the work was carried on was very rainy and considerable trouble was experienced on that account. In some cases the wagon roads reaching the line were so nearly impassable that it required three days for a four horse team to haul a load of supplies to camp. One contractor had to corduroy 12 miles of wagon roads approaching his camp.

A variety of material was handled in the grading. Considerable hard pan was encountered in the lake country, in a number of cases deposits of quicksand being found below it. Near the highest point on the line the contractor had to remove a steam shovel from a cut in which it had mired down in quicksand. For about 20 miles south of this point marshy ground predominated and several sink holes developed. There were several small rock cuts and also considerable excavation in a red clay which when wet becomes very difficult to handle. Foley Bros., and Stewart Welch of St. Paul had the contract for the excavation on the entire line, most of which was handled by sub-contractors, who, in turn, sublet a great deal of the light work to "station" men. One of the accompanying cuts shows a bad piece of station work near the point where the steam shovel mired down. The grade line was 6 ft. below the surface of a swamp in which soundings showed solid foundation to be 15 ft. below the surface. As shown in the photograph, the ditches, which



Soo Line from St. Paul to Duluth, Showing Recently Completed Extension from Frederick.

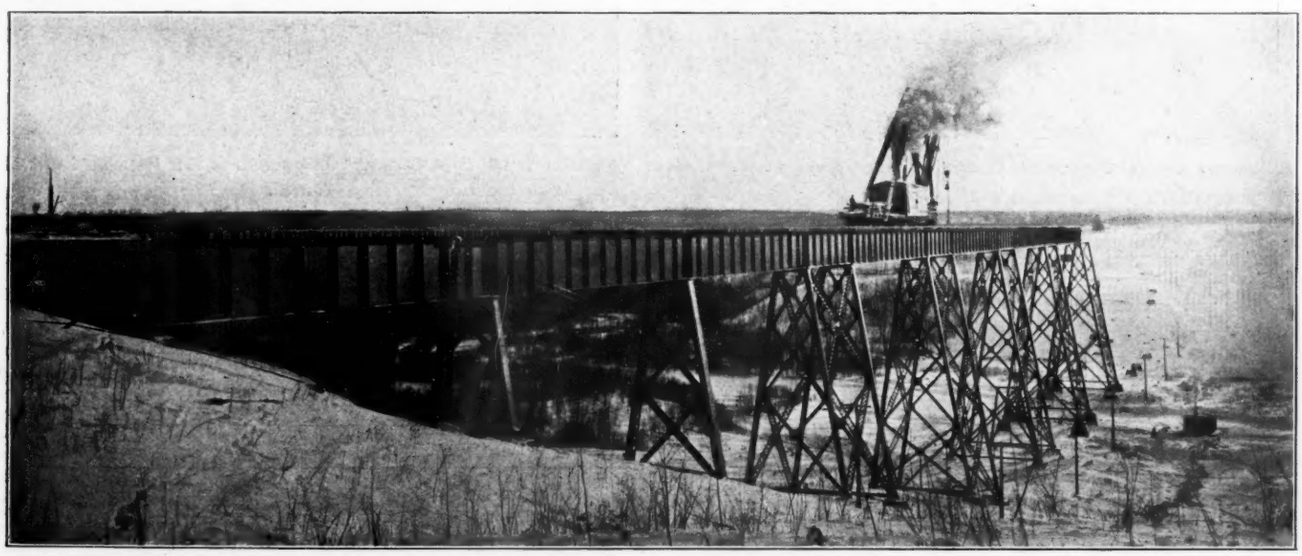
are the most important part of such a cut, were opened first and kept well below the level of the work. The method of handling the muck by wheelbarrows is clearly shown. At this point the grade was falling toward a small creek which made drainage comparatively easy. At a point about 4 miles south, however, it was necessary to lower the head waters of Black river 3 ft. for a distance of five miles to secure drainage for two soft cuts. The heavy work handled by sub-contractors was done principally with steam shovels and

team or car outfits. One contractor on the north end used a drag line excavator to good advantage. Near the close of the work he found it advantageous in making a long cut from which the material was to be wasted to take out the bulk of the excavation with the drag line operating on one bank of the cut and to trim the slopes with a steam shovel operating on the center line of the subgrade. The same contractor had a 40-ton Bucyrus shovel working in a red clay cut near this point which loaded the material into dump wagons, from which it was wasted on a dump parallel to the cut. By the use of six wagons this shovel was able to handle 500 yds. to 600 yds. in a 9-hour shift when the clay was dry enough to work readily. This method was adopted in order to utilize available equipment.

Nemadji River Bridge, Completed.

The new line is built to Soo main line standards. The grading provides for a 30-ft. base in cuts and 16-20-ft. crown on fills. The track is laid with 80-lb. rail and gravel ballast. A Roberts Bros. track-laying machine was used, being handled by company forces. It averaged about 1½ miles of track laid per day.

The worst sink hole on the line developed near the summit of the grade just south of the new town of Harlis in a swamp which had been the bed of an old lake. Soundings showed a depth to gravel and sand foundation varying from 10 ft. to 35 ft. for a distance of about 800 ft. along the line. The grade line was about 9 ft. above the original surface. The first dump had been carried up to a height of about 4 ft. when a section of the surface about 800 ft. long broke irregularly along one side and turned completely over, carrying with it about 200 ft. of track. A new track was laid alongside the hole and dumping was renewed, but the surface again broke, so it was considered advisable to bridge 200 ft. under which the depth to solid foundation was 35 ft. The remaining distance gave considerable trouble, requiring about 85,000 yds. of filling material. The accompanying photographs show the method adopted to dump material into the hole after the surface had broken. Poles as long as could be secured along the right of way were laid across the hole, directly supporting the narrow gage track. One of the photographs shows a train dumping entirely outside the limits of the fill in order to get a solid bank to support these poles across the hole which had been formed on the line. The material for the fill was taken from an adjacent clay and gravel cut which was widened considerably to furnish the necessary amount of material.



Black River Bridge During Erection.

The line crosses seven streams which required structures more than 500 ft. long, four of them being more than 1,600 ft. long. Pile or framed trestles were used throughout for short crossings and for all but two of the longer ones. The St. Croix river is crossed by three 100-ft. deck plate girders on timber framed towers approached by 1,430 ft. of timber trestle. The Clam river is crossed by one 75-ft. deck plate girder with 1,550 ft. of timber approach trestle. The Black river and the Nemadji river are crossed by steel tower and

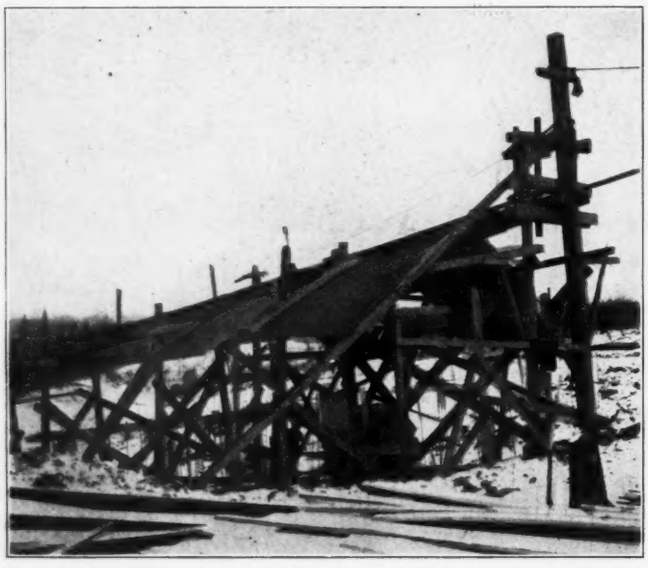
deck plate girder trestles 1,600 ft. and 1,440 ft. long, respectively. The Black river viaduct consists of nine 40-ft. towers supporting eight 75-ft., six 90-ft. and one 100-ft. intermediate girders. The maximum elevation is 104 ft, from top of pedestals to base of rail. The Nemadji river viaduct consists of one 35-ft. and six 40-ft. towers, with thirteen 75-ft., one 90-ft. and one 100-ft. intermediate girders, the maximum elevation of base of rail above top of pedestals being 62.9 ft. The girders are 8 ft. center to center; all bents are battered 1:6.

Dumping Into Sink Hole from Track Laid Across the Break on Poles.

Filling in Sink Hole off the Line to Get a Shoulder from Which to Work.

Swamp, before Fill Was Started, where Largest Sink Hole Developed.

Station Work in a Swamp; Minneapolis, St. Paul & Sault Ste. Marie.

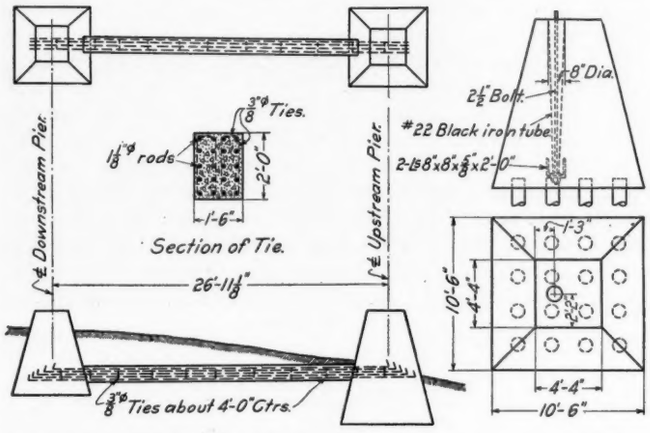


Trestle and Chute for Placing Concrete in Pedestal Forms.

Steam Shovel Cut in Hardwood Forest.

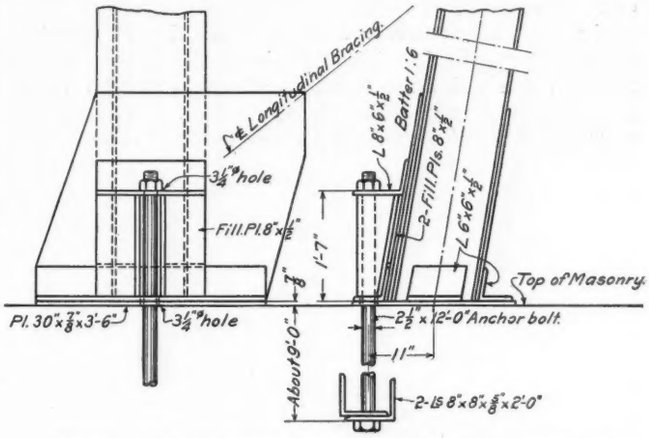
The steel work is designed for Cooper's class E55 loading. The foundations are of concrete, U abutments and square pedestals being used. The typical pedestal is 4 ft. 4 in. square on top, 10 ft. 6 in. square at the bottom and at least 10 ft. high. Where necessary, piles spaced 2 ft. 6 in. center to center in both directions were driven under each pedestal. In one bent in the Nemadji river structure a reinforced concrete tie had to be provided between pedestals to secure the necessary stability. This tie was 1 ft. 6 in. wide and 2 ft. deep,

reinforced by twenty 1⅛-in. bars tied with ⅜-in. bars spaced 4 ft. center to center. Each anchor bolt in the pedestals was enclosed in a No. 22 gage black iron cone 8 in. in diameter at the top and 2½ in. at the bottom. The lower ends of the anchor bolts, which are 2½ in. in diameter and about 12



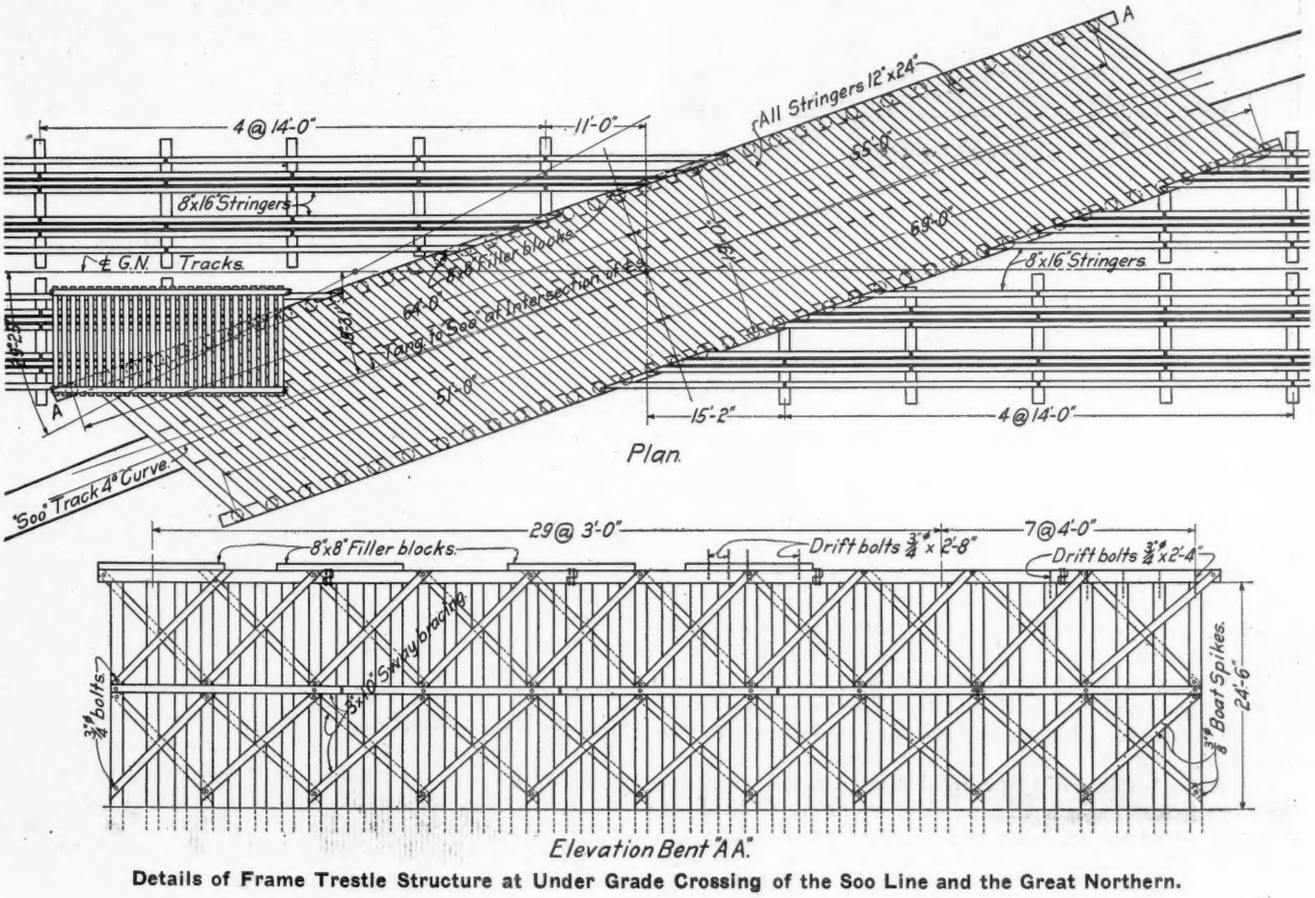
Detail of Concrete Tie between Pedestals and Cone Used for Adjusting Anchor Bolt; Nemadji River Viaduct.

ft. long, are held by a nut which engages the bottom flange of a horizontal anchor beam composed of two 8 in. x 8 in. x ⅝ in. angles 2 ft. long. This arrangement provided sufficient clearance to allow the bolts to be moved in any direction to connect to the tower posts or to allow for any irregularities in construction. After erection the bolts were grouted in, fixing them firmly in position and protecting them from corrosion. The method of handling the foundation work was essentially the same for both these viaducts. The foundations were placed by company forces, mixer plants being located on each side of the river near the bottom of the bank slope. The plants were located at these points in preference to the tops of the banks in order not to delay the erection of the steel. Smith ½-yd. mixers were used. Materials were delivered at the plant by wagons and the gravel and sand were stored in open piles. Work was carried on during freezing weather by heating the water in a barrel equipped with steam pipes and thawing the gravel and sand by the application of live steam. This steam was applied to the storage piles by 10-ft. sections of 1-in. pipe in which numerous holes were punched, one end being closed and pointed and the other being fitted with a T connection to a hose from the boiler.



Detail of Post Anchorage; Nemadji River Viaduct.

The man who was kept on duty at the plant at night could keep fire in the 10 h. p. mixer boiler which supplied steam to two of these points and was sufficient to thaw from 50 to 100 yds. of material each night. The mixers dumped into small side dump cars of about 1-3-yd. capacity running on trestles built on the center line of the bridge. For placing the



Details of Frame Trestle Structure at Under Grade Crossing of the Soo Line and the Great Northern.

pedestals under the central bents, which are practically on the same elevation, these cars were pushed out by hand to points over each pedestal and the concrete dumped directly to place. To place the pedestals on the steep banks the cars were drawn up the inclined trestle by a hoisting engine at the mixer plant, using a ⅜-in. cable carried from the drum of the hoist up over a sheave at the upper end of the trestle and back to the car. Wooden chutes were provided to guide the concrete dumped from these cars into the pedestal forms. Each plant was able to place about 90 yds. per day. The steel was erected with a stiff-leg derrick shown in one of the accompanying cuts.

The new line crosses the double track line of the Great Northern near the junction with the Brooten line at Boylston. At this point the Great Northern is parallel to and about 100 ft. from the old line of the Soo, necessitating an acute angle crossing and sharp curve to carry the new road under the Great Northern and up to a junction with the present line. A 4-deg. curve is used, the angle of crossing being 19 deg. 31 min. The Great Northern tracks were on about a 5-ft. fill. The Soo was carried down to an elevation about 12 ft. below the natural ground surface, and by revising the Great Northern grade to elevate the tracks about 12 ft.

Placing 100-Ft. Girder over Channel; Nemadji River Bridge.

at the crossing, the necessary clearance was secured. During the raising of the Great Northern tracks all traffic was alternately diverted to one track. Pile bents were driven through the embankment to form permanent trestle approaches to the crossing and the fill at the point of crossing was removed by a car outfit. The westbound track is carried on 31 bents and the eastbound on 40, the bents being spaced 14 ft. center to center and built to the standard Great Northern trestle construction, except immediately adjacent to the crossing.

The details of the timber structure over the crossing are shown in the accompanying drawing. Two bents of 38 and 39 piles, respectively, spaced 19 ft. center to center, were driven parallel to the Soo Line tangent at the intersection of center lines. These bents were cross-braced with 3-in. x 10-in. timbers. The bents were capped with 16-in. x 16-in. timbers, and connected by 12-in. x 24-in. stringers 24 ft. long spaced on 22-in. centers. These stringers were covered with No. 22 gage galvanized iron before the ties were laid.

The entire building of this extension was carried out under the direction of Thomas Greene, chief engineer; C. N. Kalk, principal assistant engineer, and G. M. Huss, division engineer, to all of whom we are indebted for information concerning the work.

"SAFETY MEETING" AT CUMBERLAND.

The General Safety Committee of the Baltimore & Ohio, A. H. Boyd, Jr., J. W. Coon, E. Stimson, C. W. Egan and Dr. J. F. Tearney, held a general meeting for the employees at Cumberland, Md., on the evening of April 3, and some five or six hundred employees of the operating department of the road were present, most of them coming from Cumberland and points on the divisions centering in that city. This meeting was one of a series of the same kind which have been held at Baltimore, Brunswick, Chicago Junction, Connellsville, Pittsburgh, New Castle, Cleveland, Newark, and other division terminals. Employees have been invited to bring their wives to these meetings, and at Brunswick, Md., nearly half of the audience was composed of women. At Chicago Junction, which, like Brunswick, is largely a railway town, a choral society of fifty voices, made up mostly of railway men and their families, furnished the music for the meeting. At Cumberland there was music by a band.

While the committee manages the meetings, the general officers of the operating department attend, so far as practicable, and the first speaker at Cumberland was General Manager A. W. Thompson. Mr. Thompson opened with a reference to the first trip made by a locomotive on the Baltimore & Ohio, over 80 years ago, and to the fact that on that first trip the man who ran the engine injured his hand. From that beginning the road has grown to a system of 4,600 miles, employing over 60,000 persons, and running 2,200 locomotives. Now, as in 1830, accidents are to some extent unavoidable, but the duty of reducing the record to the lowest terms rests upon all. Investigation shows that 80 per cent. of the personal injuries to employees could be done away with if everybody were careful and observed the rules and all reasonable precautions. The company has spent large sums of money in providing safety devices and intends to do all in its power to carry out the present purpose in which it asks the employees to join. Conservation of men is as important as conservation of forests or water power. Calling a fellow employee's attention to a violation of safety rules may sometimes bring out an impertinent or ungentlemanly answer; but the serious and important matter at issue must be kept in mind, and hasty words overlooked. We shall strive for greater safety, even if we have no higher motive than cold economy or selfishness. With experienced men, work is done more efficiently and economically, and every time an employee is killed or seriously injured an inexperienced man has to be taken into the service. No employee is required to take chances; on the contrary, the management urges that everyone think of safety first.

Following Mr. Thompson, Mr. Boyd, chairman of the committee, called attention to numerous specific rules and precautions, and gave results of the studies of the committee. Statistics were also given of the accidents on different divisions and in the different departments, with comparisons showing where progress has been made.

Mr. Egan followed this talk with about 50 colored lantern pictures, shown on a large screen, illustrating dangerous conditions in shops contrasted with the improvement made by the addition of shields and other safety devices. The pictures included, also, a large number taken in yards and on cars and engines, showing how thoughtlessness or disobedience to rules involves danger, and pointing out the simplest ways of avoiding these dangers. The exhibition ended with a picture of what Mr. Egan declared to be the most insidious danger in the railway service—a glass of liquor.

This ended that part of the evening's exercises devoted to safety, and the assembled employees were then addressed by Daniel Willard, president of the road, who set forth the most important aspects of the "railway problem" as it now confronts the American railway manager, and especially as it should appeal to all railway men, whether managers or employees.

Each of the general meetings held by the safety committee on the B. & O.—those at which large numbers of employees

have been present—has been made the subject of a bulletin, the seventh of which has just been issued. Each bulletin contains the principal address delivered at the meeting, together with statistics of personal injuries classified by divisions and set forth in sufficient detail to enable comparisons to be made between the yards, shops, etc., of different divisions. These statistics are supplemented by summaries of causes. For example, the injuries in road and yard service throughout the system in the month of December are tabulated as follows:

	Number Injured.
Road and Yard Service—	
Slipped in jumping on or off cars or engines	20
Lump of coal falling off tender	4
Fell over grade stake	2
Stepped in hole	3
Caught in wire hoop	1
Fell over large piece of coal, stone or other obstacle (one had leg crushed)	19
Falling over signal wire	2
Falling over iron on station platform—fractured rib	1
Struck by torpedo	3
Lifting knuckle lock with hand in switching	4
Struck by water spout	4
Struck by buildings not clearing	5
Struck by switch light	2
Struck by mail crane	1
Cars on adjoining tracks not clearing	2
Slipped on coal on deck of engine	1
Brake club broke	3
Fell in lighting headlight	5
Jumping from top of box car to tank—foot cut off	1
Ran nail in foot	1
Miscellaneous—	
Shoveling ashes put hand on rail, cut off	1
Car repairer caught foot in guard rail—leg cut off	1
Passenger walking on platform being repaired stepped on board which had not been nailed—leg badly bruised, passenger also thrown in ditch	1

The records kept in the office of the general committee at Baltimore not only contain statistics of all personal injuries to employees, classified in the minutest detail, but along with them such data as has been gathered by the committee in its studies of causes. In other words, the inspections and observations of committees, together with recommendations which are made to them by individual employees, are, with the least possible delay, made to apply as practical lessons to the cases of actual injury occurring from day to day. Below we give two sample pages from a record of the observations and suggestions which have come to the general committee, one page from a shop committeeman, and one from a yard committeeman. The figures at the left hand of the column indicate the nature of the item, "1" meaning local, and "2" meaning an item that affects the entire road. The letters "O. K.", in the last column at the right, indicate that the danger referred to has been properly cured or done away with.

James Pratt—Shop Committeeman.

	Cost.	Reported.	Completed.
2. When chipping there should be curtain or canvas made to keep flying parts from hitting other employees	....	Nov. 25	.....
2. Machine shop employees should not use gloves on light work	....	Nov. 25	O. K.
2. In blocking up engine in shop, an experienced man should supervise the job	....	Nov. 25	.....
2. Notice hostlers moving engines and bumping into other engines without ringing bell or sounding whistle—dangerous practice	....	Nov. 25	.....
2. Caution employees about starting machines before work is properly fixed, also about leaving tools where they can be hit by other parts of machine	....	Dec. 9	.....
2. Better inspection of freight car doors and roofs, have had trouble with car doors falling off and loose boards on roof	....	Dec. 9	.....
2. Call attention to employees to go and see doctor as soon as injured—a man contracted blood poisoning from not doing this	....	Dec. 16	O. K.
2. Old and new pipe lying on floor in round houses. Rack should be erected for pipe, and the floor kept clean—pipe liable to roll when stepped on	....	Dec. 16	.....
1. Electric lights in shops should be turned on at 6:50 a. m. so that employees can have good light while going through shops before starting to work; light should be turned on early in evening and on dark days	....	Dec. 16	.....
1. *Suggest board walk be built on Bridge No. 1 over first span from east end,* or wire netting put up under bridge so as to catch employees from falling into river—*lives have been lost at this bridge*	....	Dec. 23	.....
1. Snowball throwing in and about shops should be discontinued as same can result in personal injury in many ways	....	Dec. 23	O. K.

R. B. Brown—Yard Committeeman.

	Cost.	Reported.	Completed.
1. On bridge, switch dangerous, small platform hardly large enough to stand on, no railing, if slipped would fall 18 or 20 feet; there should be railing	....	Nov. 25	O. K.
1. Penstock at coal chute, Monongah Yard, very bad shape, about half the water is wasted, no spout and this makes the grab irons and steps dangerous from water freezing	....	Nov. 25	.....
1. Suggest arc light near yard and telegraph office, several injured from falling—the tool house not needed—move it to Yard Office	....	Nov. 25	.....
1. Star Oil Works—pile of dirt between tracks where cars are cleaned out, dangerous for night crew—ties piled too close	....	Nov. 8	O. K.
1. Camden—switch ties piled too close	....	Nov. 8	O. K.
1 Engine Siding—derail closed instead of being open and locked	....	Nov. 10	.....
1. Engine 321 cut off chain broken and cut off lever inoperative	....	Nov. 10	O. K.
1. Guard rails with several blocks gone at several points in yard—dangerous	....	Nov. 10	.....
1. Block in guard rail at Steel Plant too short—man's foot can go between rails	....	Dec. 17	.....
1. Electric light poles at East End freight house and posts of freight house do not clear properly on account of spikes in same	....	Dec. 26	O. K.
1. About 400 feet of the railing along the edge of passenger platform be fastened or braced in some way as this is very dangerous	....	Dec. 26	O. K.

The contract of the Northwestern Railway Company of Peru for the construction and exploitation of the Lima to Huaco railway, has been rescinded by the government of Peru for nonfulfillment of its terms. The government will take over the line after an inventory of all property has been made and an indemnity paid in accordance with the terms of the contract. The estimated value of the constructed part of the railway is $2,185,925, which amount is subject to a penalty discount of 10 per cent.

By the treaty of Portsmouth, accepted by China, Russia and Japan were to operate the railways which Russia had built in Manchuria, and further were authorized to keep a military force of 25 men per mile to guard the roads, Manchuria being infested with robbers. The result is, that while the rest of China is torn up by a revolution, Manchuria is kept peaceful by these foreign troops. Japan is said to be making money on its part of the railways, which are in a fertile country, with valuable coal mines, and is doing much for the comfort and education of the railway employees, through associations patterned after our Railway Men's Christian Associations, with lecturers, teachers, etc.

The new railway from Gabrova, Bulgaria, to Tzareff, was opened in February. This 11-mile line connects Gabrova, an important industrial town, with the trans-Balkan line from Tirnova to Stara Zagora, which was opened a few years ago. With a view to further development of the railway system the Bulgarian minister of communications has asked for the following appropriations: $60,000 for enlarging the Sofia workshops; $40,000 for repairs to railway lines in Southern Bulgaria; $42,000 for the construction of two bridges between Sarembey and Phillipopolis; $800,000 for the purchase of rolling stock; $150,000 for the purchase of rails, etc.; and $80,000 for water conduits. Should these appropriations be made, bids will eventually be invited for the requisite material.

The government of Venezuela has granted a concession for the construction of a steam or electric railway from Caracas to Guatire, via Guaremas. This railway will pass through a fertile agricultural and stock-raising section, and will open up to development and exploitation a rich timber and mining zone. The line is to be completed within four years after the commencement of the work, and on the expiration of 99 years, will become the property of the government with all its rolling stock and appurtenances. The gage of the railway is to be 3 ft. 3 in.; the minimum radius of curves, 62 yds.; and the maximum grade 3 per cent. The freight and passenger rates to be charged to the government are to be one-half of the regular tariff rates, and the mails are to be carried free.

OPPORTUNITIES FOR ECONOMY ON RAILWAYS.

Fourth Article in This Series. How to Reduce the Number of Personal Injuries and the Amount of Loss and Damage.

BY L. C. FRITCH, C.E.,
Chief Engineer, Chicago Great Western.

The railways of the United States expended $57,406,007 for loss and damage for the fiscal year ended June 30, 1909. This expenditure was made up of the following items:

1.	Injuries to persons	$20,618,385
2.	Loss of and damage to freight	24,916,280
3.	Loss of and damage to baggage	299,028
4.	Loss of and damage to property	4,553,041
5.	Loss of and damage to live stock	3,488,628
6.	Clearing wrecks	3,530,545
		$57,406,007

This amounts to over 3½ per cent. of the total operating expenses of the railways, and is a sum entirely disproportionate to the actual necessities of the case. It represents the results of the "haste makes waste" feature, which is a dominant characteristic of our national life.

The above amount does not include other millions of losses annually occurring and borne by railways, such as fire losses, damage to railway property in wrecks and other losses which are charged to other accounts. It simply represents the losses paid to others, due to damage to persons and property for which the railway is liable.

The assertion is ventured here, that if liability companies would undertake to protect railways against the expense due to loss and damage enumerated above, a means would be developed whereby such expense would be greatly decreased. As an instance to support this statement, it can be shown that the losses by fire on railways have been greatly reduced in recent years through the operation of inspection bureaus of fire underwriters carrying insurance on railway property. If, by such modern methods the fire losses on railways can be reduced, then it follows that losses of other kinds can likewise be reduced by the application of the same careful, modern and scientific methods.

The question is, to what extent is it reasonably possible to reduce these annual losses, which are entirely unnecessary and an evidence of the lack of extreme care and precaution in railway operation?

One reason why these losses amount to such enormous sums is that our railway systems are becoming such large unit organizations, and such masses of detail are involved, that careful supervision is often sacrificed. This is proved by the loss and damage records on small roads which show a total of only about 2 per cent. of operating expenses, while on large roads the total aggregates over 3½ per cent., or 80 per cent. more in proportion.

There is a reason for this, and it would appear to be that there is closer supervision over operations on smaller roads than on our large, modern systems.

There is a greater lack of supervision of the right kind in railway management than in any other branch of industry in our industrial life. This alone accounts for the enormous wastes which are found in railway operation. The result of this condition has awakened a sense of responsibility on the part of railway managers, and the efforts made within the past year alone bear evidence to the beneficial results that may accrue from a greater efficiency in operations most of which is the direct result of closer supervision.

The writer has urged the supreme importance of intelligent supervision to the extent of advocating the creation of a department in charge of a vice-president on each large system whose sole duty it should be to supervise intelligently the operation as a whole. If this experiment is ever attempted by the railways it will show marvelous results in eliminating the wastes that now prevail.

If the smaller roads can, by the exercise of reasonable care and precaution, keep the items of loss and damage within 2 per cent. of the total of operating expenses, it is conservative to expect the larger roads to be able to do likewise. If this were done this class of expenditures on the railways of the United States would be reduced annually about $25,185,174.

The increasing loss and damage expense is by some attributed to a growing tendency on the part of railway employees generally to take less and less personal interest in the welfare of the company employing them.

Years ago when railway systems were small there was a closer relation between the officials and the rank and file. Managers of such railways often knew intimately most of the employees and took a personal interest in them and their welfare. This, in turn, evoked in the employees a loyalty to the management which was reflected in the service. Now our systems have expanded so that the managing officers are entire strangers to the rank and file, and the lack of personal contact and association has caused an estrangement between the employee and the higher officials. The *esprit de corps* has been greatly reduced through this development of large systems. Loyalty is a quality which is rapidly growing conspicuous by its absence. The "railway families" which existed on many roads a few years ago have been almost entirely obliterated. Strangers have taken the place so long and familiarly held by the "old man" whom every employee knew and loved and loyally served, and under whom they felt secure in their employment as long as they served the company loyally and well. We now have large systems of many thousands of miles operated from headquarters located a thousand miles from base, and by men totally unknown to the rank and file and whose sympathies are not in unison with them.

These are some of the fundamental causes for the increases in such expenses as loss and damage which are largely the result of a lack of interest in the welfare of the company, which was the predominating characteristic of the *esprit de corps* of the smaller systems which are so rapidly passing away.

The policy of the modern transportation organizations seems to be to consider the system as a large machine and each man a cog in the machine. If the cog becomes slightly worn and no longer fits into the machine it is discarded and another put in its place and the machine moves on. This makes the human element in the organization purely mechanical, and the results indicate that the employee is rapidly becoming a part of the machine, doing his appointed task, no more and no less, and taking little or no interest in matters that were formerly his concern and his interest in, which resulted in co-operation and large benefits to the organization.

In every human being there lives the instinct of manhood. If this is appealed to it will respond in loyalty and helpful service, but if dwarfed and thwarted it will lie dormant and engender another characteristic which is the opposite of loyalty.

In order to reduce the annual loss and damage to property, we must make employees feel a personal interest in the property intrusted to them, and this can only be accomplished by a proper consideration of the employees' interest by those under whose jurisdiction they are employed. There will be a quick and ready response when such appeals are "from man to man."

The fact that loyalty of employees to the interests of the company is one of the most valuable assets which it can possess, and that it is directly reflected in the items of expense herein considered, is corroborated by the experience of the Pennsylvania system, which indicates that while the items named for the year

1909 on the railways of the country as a whole averaged over 3½ per cent. of operating expenses, on that system they averaged only 164/100 per cent., or just about one-half as much. This meant, in effect, a reduction in these items on that system of over $3,000,000 in one year, most of which is attributable directly to the splendid loyalty existing on that road among its rank and file of employees.

Analysis of the expenditures for loss and damage on a road on which an almost complete change of management has taken place during the last year, with its attendant feeling of uncertainty among the rank and file, shows that these items of expense averaged 4 per cent. of operating expenses, or higher than the average for all roads, and two and one-half times the rate on the Pennsylvania. It is almost possible to establish the degree of loyalty of the employees of a railway by the proportions of certain items of expense of operation, such as those herein discussed.

INJURIES TO PERSONS.

This item includes all expenditures for injuries to persons, including employees and others, for which the carriers are liable. These items for one year by departments are as follows:

Maintenance of way	$1,500,000
Maintenance of equipment	1,100,000
Transportation	18,000,000
	$20,600,000

Many accidents on railways are caused by unavoidable circumstances or unforeseen conditions and are beyond reasonable and prudent care and precaution to prevent.

When it can be shown that a carrier has used all reasonable diligence and precaution to guard against accidents, the law should hold it blameless for any resulting responsibility for damages. Unfortunately, while this is a rule of law, it is not always so applied in railway damage cases. The "ambulance chasers" and pettifogging lawyers are ever watchful, like vultures, to persecute the railways, and through their persistence millions of dollars are paid out for damage claims for which railways should not legally be held liable.

There are so many contingencies in transportation that make the occurrence of accidents probable, that if they were enumerated and each possibility doubly safeguarded against, accidents would still happen, and although doubly reasonable care were exercised to prevent the accidents, railways would still be held liable.

The splendid ability and foresight of railway managers is attested by the fact that so few accidents occur on railways, due to neglect of provisions to prevent accidents. Structures and equipment are provided with large factors of safety and no chances are taken which human foresight can foresee. Rules and regulations are framed that if strictly observed would practically eliminate accidents, except those due to causes to which no human agency or foresight can avoid.

Most of the disastrous accidents on railways are caused by the failure of employees to observe the rules and regulations provided for them. If stringent laws were passed holding employees criminally liable for failure to perform their duty, when such failure results in loss of life or injury to persons, and if such laws were enforced many deaths and injuries as well as loss of property due to railway accidents would in future be avoided.

A number of railways have recently adopted a system of safety committees to prevent accidents. These committees are organized in such a way that the entire service is completely covered. A central committee consisting of higher officials exercises jurisdiction over the entire plan. Divisional committees consisting of the principal division officials have jurisdiction over the respective divisions. Subcommittees at important points and stations have charge of distinct territories and branches of the service.

The simple instructions given to these committees individually and collectively are that they shall be ever on the watch to do anything and everything which comes under their observation that will tend to prevent the occurrence of accidents to persons or property. This plan carried out to its fullest extent must result in tremendous good and increase the safety of travel and employment in the railway service.

As an illustration of what is possible under this plan one important railway reports that the results secured on its system indicate a reduction in accidents as follows, as set forth in the *Railway Age Gazette* of December 22, 1911, page 1287.

47 per cent. in trainmen killed,
40.8 per cent. in trainmen injured,
30.7 per cent. in switchmen killed,
18.5 per cent. in switchmen injured,
50 per cent. in stationmen killed,
10.5 per cent. in stationmen injured,
32 per cent. in trackmen injured,
34 per cent. in bridgemen injured,
11.4 per cent. in shop and round house men injured,
85 per cent. in car repairers and inspectors killed.

Total reduction of 17 employees killed,
Total reduction of 2,144 employees injured,
70 per cent. reduction in passengers killed,
10 per cent. reduction in passengers injured.

The period covered is the eleven months preceding December, 1911.

If such results can be secured on one system, what may we not hope to see accomplished if this method is followed by all the railways of the country?

It is a humanitarian work, it begets loyalty in the service and promotes the sympathy of one class of employees for another, and altogether it is a labor of love and duty, and brimful of the "milk of human kindness."

If one road has done so much, is it not likely that by a universal application of the same principles we may reduce our accidents one-half, and, therefore, the expenses due to these accidents correspondingly and save not only many lives and painful injuries but an annual loss of $10,000,000?

LOSS OF AND DAMAGE TO FREIGHT.

The annual expense due to loss of and damage to freight is, in round figures, $25,000,000.

This item has increased rapidly during the past ten years. Many causes contribute to it, one of the principal ones being the destruction of and damage to freight occasioned by rough handling of equipment for which the employee is primarily responsible, but the blame for which is promptly placed upon the automatic coupler and the air brake, now universally used on freight equipment. The switching of cars in gravity yards has also been charged with a part in this wholesale destruction, but the blame does not properly belong there. That a part of this damage is due to modern equipment is no doubt true, but nine-tenths is due to the rough handling by trainmen which goes on unchecked from year to year until it has become a custom that will require years to break up.

It is only necessary to observe the operations in switching in any freight yard to realize the extent of this evil practice and the almost entire absence of any effort being made to remedy it. The damage to the contents of cars is equal to only a part of the total damage done to the equipment. It is necessary to make extensive repairs of some kind to each freight car on an average of once per month, and this is directly due to the rough handling in yards and on trains, most of which is avoidable.

The claim is made that rough handling is unavoidable on account of the length of trains, high speed and the rapidity with which work is required to be done in switching operations. This haste is accomplished at the expense of heavy payments for damage to freight and equipment, and it would be far more economical to require care in handling even at some additional transportation cost than to continue the present destructive methods. There must be a change in the handling of equipment by train and yard crews if this unnecessary loss is to be avoided, and it can be accomplished by applying the proper remedy.

Another source of damage to freight is improper loading of cars. Merchandise in less than carload lots is loaded by railway employees, and much of the damage caused in transit is due to improper loading, or "stowing" of freight in cars, which can

be avoided if proper care is used. Recently a set of rules have been prepared for the safe loading of explosives and dangerous articles. These rules were accompanied by diagrams showing the method of bracing such loading in order that it may be transported safely. Also the Master Car Builders' rules provide for properly loading freight on open cars. If rules were made and carried out for the proper loading of less than carload shipment, much damage to such freight with consequent damage claims, would be avoided.

The loading in mixed carloads of articles that by their close proximity to other freight causes damage to the latter is also a fruitful source of loss and damage claims, as also is the practice of loading cars unfit for receiving certain classes of freight, cars with leaky roofs, cars with dirty floors and sides, or otherwise in unsuitable condition.

Payments for what are known as O. S. & D. claims (over, short and damage claims), aggregate a large proportion of the amounts annually paid out by railways. These claims have their origin in the carelessness primarily of the shipper in not properly marking and packing shipments, and secondarily, of the carrier in accepting shipments in bad condition. Rules have been promulgated to remedy these defects, but they are not stringent enough, and are not fully enforced. There is room for much improvement in remedying these troubles.

The system of loading merchandise at many large freight stations is defective, and freight is often loaded in wrong cars and goes to wrong destinations, incurring at once an "over" at one point and a "short" at another. There are several simple and effective plans for guarding against wrong loading, any one of which saves not only many claims, but annoyance to shippers and loss of traffic to the railways.

A careful check of over, short and damage reports at each station is productive of good results in tending to reach the real causes and correcting wrong practices. A central point of collection of all "over" freight as a clearing house also tends to promptly detect shortages elsewhere and saves claims. An interchange of over and short reports among terminal point agents is also productive of good results.

The handling of freight claims as far as over, short and damage claims are concerned is properly a function of the operating department. Such claims are charged to operating expenses and being caused by the neglect of that department, and should be under its full jurisdiction. Where such claims are handled by the traffic or accounting departments, it is not possible to secure as prompt and efficient results in reducing them and correcting the evils.

Railways are receiving rates for their services that are far from being in proportion to the risk they assume in handling freight, being held to strict accountability for all loss and damage incurred in their care, even when they have exercised the utmost care in handling the shipment. It should be the rule, that if they can prove the exercise of reasonable care, which is the law in all other respects, their responsibility should cease. Railways are being made the common prey of many unscrupulous shippers who underestimate weights or overestimate values, and almost invariably the carrier is obliged to pay the claims unded penalty of losing traffic or prosecution, while a verdict for the shipper is a foregone conclusion.

As a means of preventing losses due to incorrect weights, some railways that have made a specialty of weighing bureaus, whose duty is to provide adequate and correct scale facilities, see that all freight transported is accurately weighed, and stand upon these weights.

In this connection, the weighing of empty cars at stated periods is a most important factor. The effort and expense involved in conducting weighing bureaus on a modern up-to-date basis is returned many fold in increase in revenue and reduction of claims due to weights.

The handling of live stock entails many claims which are forced on railways, some of the causes of which are entirely beyond their power to regulate, even if the utmost care and precaution is taken to avoid them. State and federal regulations, however, place the burden upon the carrier. This makes the shipper careless, many times intentionally so, and makes the carrier the victim of unscrupulous shippers.

In the interest of fair play and honesty, shippers should be held to the same degree of responsibility. This would make unnecessary the payment annually of thousands of dollars in claims now paid under compulsory regulations from which the carrier has no relief.

The same statements apply with equal force to perishable freight shipments. On many roads there is little margin left after the payment of excessive claims on live stock and perishable shipments, and the high cost of handling such shipments due to fast schedules and empty movements in one direction, but common carriers must accept them and be responsible for them under their obligations to the public. However, there is much room for improvement in regulations that are now framed largely in the interests of the shipper and impose undue responsibility upon the carrier.

The expense due to claims for loss of and damage to baggage represents a comparatively small item, but is doubtless susceptible of reduction by the exercise of the utmost care and precaution. The system and despatch with which baggage is handled on American railways is superior to that in any other country of the world, and where such a quantity is handled as in this country, the record of loss and damage is remarkable and a proof of the splendid system in use.

While baggage is often handled roughly, causing damage which may be concealed so that no claim is filed, the rough handling is largely due to the limited time allowed for handling.

The expense of loss of and damage to property amounts to over four and one-half millions of dollars annually. A large part of this damage is caused by destruction of and damage to property, such as crops, buildings, lands, fences, etc., adjacent to the right of way.

When the amount of property adjacent to the railways of the country which is exposed to the possibility of damage by fire from locomotives is considered, it is remarkable that the damage is not greater. There are frequently large individual losses for which railways are held liable where the real causes are doubtful, but because of the inability to prove the exact cause, and the readiness with which juries return verdicts against railway corporations, they are often unjustly required to pay heavy claims for damages for which they are not responsible. In the cotton territory of the South many fires have occurred in cotton compresses, resulting in losses of many thousands of dollars where the fires were doubtless caused by the carelessness of employees of the compresses, and where abundant proof is given either that no locomotive was in the vicinity of the fire preceding it, or that netting was in first class order, nevertheless the loss is charged to the railway company.

There are numerous ways, however, by which railways may reduce these losses. Clean rights of way and co-operation with adjoining land owners to protect against the spreading of fire by plowing furrows just inside or outside the right of way lines tend to reduce these losses.

There is much carelessness in permitting the accumulation of rubbish at stations. This is a ready and prolific source of fires which often destroy much valuable property.

Railway property, by reason of its exposure to fires from locomotives, is subjected to heavy losses, but careful systems of inspection inaugurated by many roads, tend to greatly reduce these losses not only of railway property, but other property for which liability is incurred.

The use of locomotives burning oil or coke is often resorted to where lines are operated in lumber or cotton districts, or other points where highly inflammable or valuable property is exposed. The proper location of buildings to prevent spreading of fires is also an important matter, and in many instances is not given due consideration, or is entirely disregarded.

The same care and judgment that is being exercised in the prevention of accidents to persons through the operation of safety committees can with profit be extended to the prevention of destruction of property and reduction of the losses now annually incurred in this direction. Division officers who pass often over their territory have excellent opportunities to act as inspectors and remedy conditions which cause damage to railway and other property. It is surprising what good results can be accomplished in this manner.

The annual losses due to damage to live stock killed and injured on right of way amounts to about three and one-half million dollars. One of the causes contributing to these losses is the absence of laws preventing stock running at large. This is especially true in many southern states. Railways cannot be held accountable for this lack of adequate laws, and are powerless to secure their passage. This condition is a menace to the safety of life as well as property and in the interest of the public good such laws ought to be enacted.

Railways are made victims by many unscrupulous owners of worthless live stock by the collection of fictitious sums for stock killed, and on the whole are far more just in their dealings with the public in this matter than is the owner of the live stock killed or injured.

The neglect by railways, however, of the maintenance of right of way fences contributes to these losses often in amounts which would meet the cost of fencing and its maintenance. Self-closing farm gates are also possible and leave no excuse for the farmer to neglect to close them. Often through the landowner's neglect the railway company suffers a heavy loss.

Enginemen by carefulness can often prevent a heavy stock claim. A slight delay to a train to avoid striking stock on track may save hundreds of dollars, or a possible more serious result in the nature of a wreck.

Clearing wrecks cost the railways annually about three and one-half million dollars. While many wrecks are the result of unavoidable causes, on the other hand many result from carelessness in operation or management.

With the reduction of accidents from avoidable causes, which is possible, a corresponding reduction can be made in this item of expense. This does not include all the loss consequent upon accidents, but merely covers the cost of replacing equipment on track, clearing up wrecks and repairs to roadway. The larger losses by damage to equipment, personal injuries and other incidental damage is not included. Therefore, while the aggregate amount of this item seems small for all railways, when it is considered that it covers only a small part of the total losses which accidents involve, it is large and is susceptible to material reduction, principally through the exercise of greater care on the part of the employees and the operating officers of the railway companies.

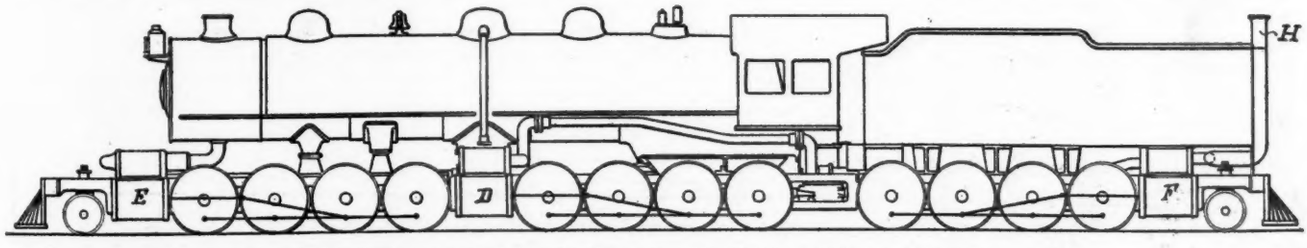
A recent accident in which a number of prominent railway officials lost their lives is still fresh in the memory of all, and is an apt illustration of an unnecessary accident caused by pure carelessness and neglect. There are many such accidents on our railways which ought to be prevented by a means that would hold criminally liable employees who are found guilty of violating through wilful neglect the rules and regulations prescribed for the safe conduct of the business of transportation.

TRIPLEX COMPOUND LOCOMOTIVE.

The weight of the loaded tender of Mallet locomotives is usually 40 to 50 per cent. of that of the engine ready for service. Some of these loaded tenders with four-wheel trucks weigh 175,000 to 180,000 lb., and those with six-wheel trucks as much as 230,000 lb. This has suggested the idea that the weight of tenders, when only 25 per cent. of the load of coal and water remains, would be sufficient for the adhesion required by a pair of large compound cylinders. The weight of the tender with 25 per cent. load would be over 100,000 lb., which furnishes a sufficient load for a tractive effort of 25,000 lb., and the weight of the locomotive running gear and machinery adds enough for the desired tractive effort.

An interesting and ingenious design which is based on this principle is illustrated herewith. The engine is practically an ordinary Mallet with a working tender, but, instead of having the high and low pressure cylinders of different sizes, the locomotive is constructed with a pair of high pressure cylinders attached to the frames connected with the back part of the boiler and two pairs of low pressure cylinders, one in front and one at the rear of the tender; all the cylinders are of the same size, so that a compounding ratio of two to one is obtained. For instance, if the boiler carries 200 lb., there would be 100 lb. back pressure in the high pressure cylinders. This would give a mean effective pressure of 100 lb. per sq. in. in all of the cylinders with the reverse lever in the corner.

The horizontal pipe with a ball joint in the cylinder saddle, which takes the exhaust from the high pressure cylinders to the low pressure cylinders, has given practically no trouble in Mallets now in service, and this is simply duplicated in the rear of the new design by making a pocket with a ball joint in the foot plate and taking the exhaust steam from the high pressure cylinders back to this foot plate, as well as forward to the front cylinder. The reason the cylinders on the tender are placed at the rear end is in order to make a suitable length swivel pipe which has the ball joint in the foot plate and which is analogous to the receiver pipe connecting the high and low pressure cylinders at the front of the engine. This pipe would be entirely too short for good service if the cylinders were at the front end of the tender, and, besides, it allows a truck at the end, so that the locomotive can be run in either direction with equal satisfaction.



Proposed Triplex Compound Locomotive with Engine on Tender.

This engine has been worked out from a Great Northern locomotive as a base, and it is found that with a slight increase in the weight and cost, and without any increase in length, there is obtained about 50 per cent. more tractive effort, the working tender being so arranged that with only 25 per cent. of fuel and water remaining there will be sufficient weight to give the full adhesion.

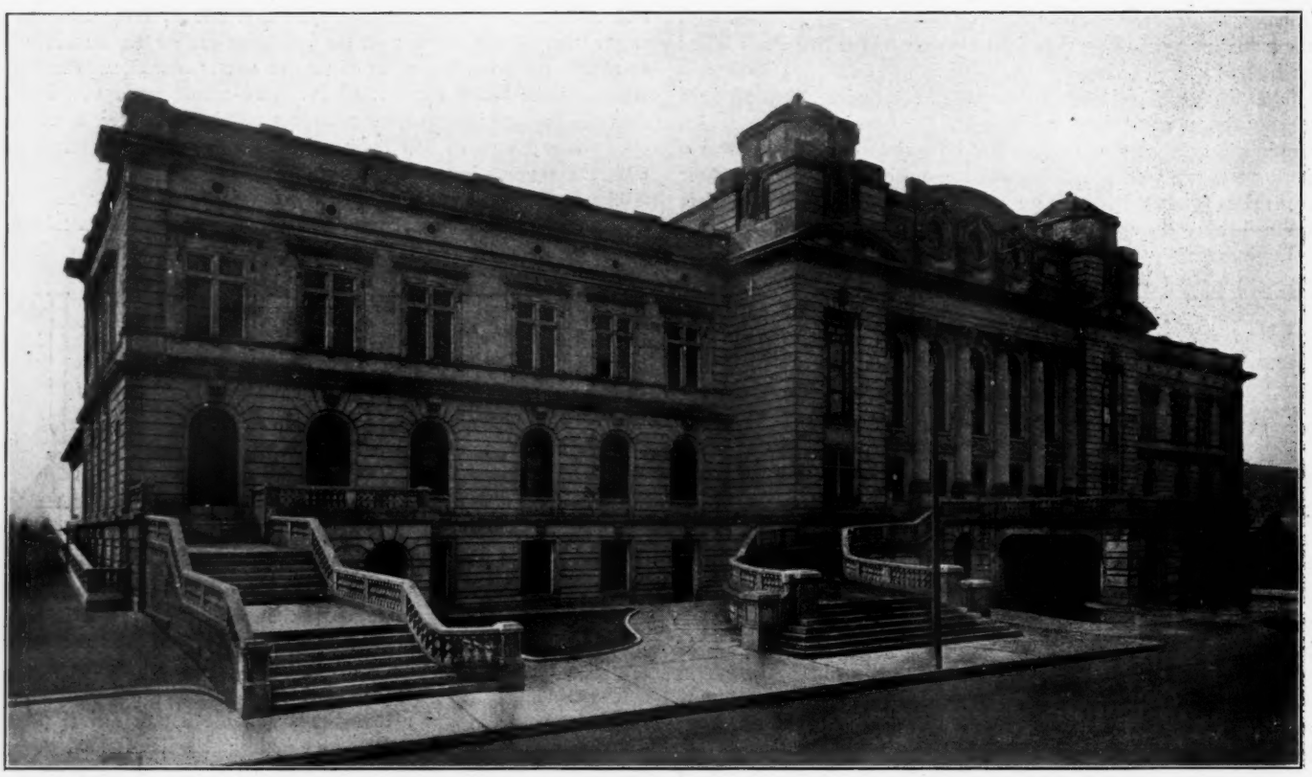
Since the cylinders are all of the same size, the pistons, valves, crossheads, and even rods are the same throughout the engine. The link motions will be practically the same and the spring riggings are the same on the front and back sections. The driving boxes may be made alike and this, together with the fact that there is really nothing in the way of experiment in the separate elements of the design, should make it a desirable type for heavy grade work. It is intended to take the exhaust from

the rear section and pass it to the atmosphere by a separate pipe, or, if desired, it can be used for heating the water in the tender in cold weather. The special features of this locomotive plan have been patented by George R. Henderson, and assigned to the Baldwin Locomotive Works.

MEMPHIS UNION STATION.

The new union station at Memphis, Tenn., was occupied by the St. Louis, Iron Mountain & Southern, the St. Louis Southwestern, the Nashville, Chattanooga & St. Louis, the Southern and the Louisville & Nashville on April 1. The building is located near the business district of the city and within easy reach of the other railway terminals. The ground consists of four city blocks, comprising an area of about 25 acres, bounded by Calhoun and Railroad avenues, Rayburn boulevard and South Second street. When this tract was purchased several years ago it was partially covered with rubbish, partly built over with straggling, tumbledown tenements, and was crossed by the Bayou Gayoso, a stream averaging about 16 ft. deep and 25 ft. wide. It involved considerable work to prepare this site before any work could be done on the structure proper. A fill of 150,000 yds. was made, the dirt being hauled in by trains from outside the city. This work alone required four months. The stream was taken care of by building a reinforced concrete storm sewer 8 ft. x 14 ft., in section and more than 2,000 ft. long, which cost about $90,000 and required eight months to build. The street traffic formerly crossing the site was cared for by building subways at Carolina avenue and Rayburn boulevard.

Actual construction work on the building was begun about April 1, 1910. The plant consists of the station building proper, 84 ft. x 285 ft., three stories high; the train concourse, 241 ft. x 95 ft.; the express building annex, 40 ft. x 275 ft.; the power house, interlocking tower and roundhouse. In the design, future developments have been carefully considered and facilities provided which should be adequate for at least 25 years. The entire plant is fireproof and has been constructed with an eye to climatic conditions, giving the traveling public the maximum of convenience and comfort. The design of the main building follows the early Italian renaissance. The materials used are Vermont granite, Bedford limestone, steel and concrete. All stone was cut and dressed at the quarries, and considerably facilitated the construction. The main building is rectangular, surmounted by twin towers over the central portion connected by an upper story, forming a sort of facade on the north. The main approach is by a crescent-shaped staircase rising to a broad balcony over a porte cochere. This approach is lighted by large electric globes carried on bronze standards of artistic design. Rising above the balcony to the upper story are six columns of monolithic limestone. The large windows on the front of the station are arched, the casements and frames being of cast iron fitted with Imperial plate glass. At the northeastern corner of the building a separate stairway is provided for the accommodation of colored passengers, allowing them to enter their own waiting rooms directly. Baggage and express are handled from wagons directly to the baggage and express rooms on the street level, the entrance being on the west side. An ample carriage stand for public and private vehicles is provided just east of the station.



Exterior of Memphis Union Station.

The main waiting room is 76 ft. wide and 100 ft. long. The ceiling is very high, and is carried by steel trusses. It is tiled in artistic designs and is lighted by 210 Tungsten incandescent lamps. The walls are finished in tiling and native and Italian marbles, the prevailing shades being green and brown. Twenty-four triple lights, carried in heavy brass fixtures, are provided around the walls. Wide balconies run along two sides of this waiting room on the mezzanine floor, from which passengers may obtain an unobstructed view of the terminal yards and train shed on the south or of the city of Memphis on the north and east. The room is furnished with massive settees of Honduras mahogany resting on Verde Antique marble bases.

Facing this main waiting room are the ticket offices, the telegraph offices, baggage check room, parcels check room, news

stand, Pullman office and information booth. Telephone booths, sanitary drinking fountains, bulletin boards and other conveniences are also arranged around the room. The ladies' waiting room, which opens out of the main waiting room, is finished in the same style, and, in addition to the mahogany settees, contains numerous wicker rockers and other facilities for the comfort and convenience of women travelers.

Adjoining the waiting room is a lunch room, 40 ft. x 83 ft., finished in Alabama white marble, with mosaic floor. The counters are of white marble and seats of polished mahogany, all the equipment being of the latest design. The dining room just beyond this lunch room is finished in intricate designs of Italian sienna, Alabama white and blue cloud marble. The floor is also of marble designed to harmonize with the walls and ceiling. The furnishings are of Honduras mahogany, harmonizing with those in the remainder of the building. The lunch and dining rooms are served from a spacious kitchen equipped with the most modern culinary devices.

The waiting room for colored passengers is 39 ft. x 69 ft., and is finished in marble and tile, with mosaic floor of ornamental design. A separate lunch room is provided, and all the facilities found in the main waiting room are duplicated in this portion of the building.

A commendable feature of the building is its clock system. In all public rooms there are large clocks electrically connected with one master clock, insuring correct time.

The train concourse on the same level with the main waiting room is 95 ft. wide and 241 ft. long. It is built of steel and concrete, and faces south towards the terminal yard. It is roomy and well ventilated, and affords a lounging place for patrons who have to wait for trains. It is also connected with the street by direct exit. The train sheds are of the butterfly type, built of steel and reinforced concrete. This type is preferred in southern climates to the enclosed types, since it allows very much freer ventilation, which is especially appreciated by the patrons of sleeping cars which stand in the terminal until a late hour.

On the ground floor a large rest room is provided for passengers who have to spend the day in the station and who may desire to eat their meals in the building or secure greater privacy than is possible in the main waiting room. This also has a ladies' retiring room, a well equipped barber shop and tub and shower baths. Provision has also been made for a drug store and a billiard room on this floor. The baggage room, which is also on the ground floor is 64 ft. x 88 ft., and is supplemented by an overflow baggage room about half as large and by an annex baggage room 75 ft. x 240 ft. This room is connected with the baggage check room adjoining the main waiting room by a tube system, to facilitate the checking out of baggage. All baggage is handled to the trains through a subway 15 ft. wide running the entire length of the track yard and connecting with cross subways which reach hydraulic elevators located between tracks opposite points where baggage and express cars stop. The remainder of the ground floor is taken up with the railway mail room, express companies' offices, locker and rest rooms for trainmen and Pullman conductors' room. The third floor of the station is given up entirely to offices.

Main Waiting Room of Memphis Station.

The power house is located about 1,300 ft. south of the station building, with which it is directly connected by a tunnel 8 ft. square, accommodating all electric conduits, steam and water pipes. The boiler room of the power plant contains four 300-h. p. Stirling water tube boilers, equipped with Roney mechanical stokers. The engine room contains three 187½ k. w., 2,300-volt generators for furnishing power and lighting current to the station building and other facilities. Two 2-stage, 1,500 cu. ft. air compressors furnish compressed air for operating the

electro-pneumatic interlocking plant and the deep well pump. The artesian well from which all water for the station is taken is 560 ft. deep, and has a capacity of 700 gal. per minute. Water storage is provided by a 100,000-gal. tank which is always kept full for emergency use. The water for drinking purposes is cooled by a 10-ton refrigerator plant. The station building is heated by the hot water system from the power house, the water circulation being controlled by a centrifugal pump driven by a turbine engine. Coaches standing in the yard are heated by steam also furnished from the power house. A system of air pipes is laid throughout the yard for use in cleaning coaches. The coal supply for the power house is dumped directly from standard cars into bunkers below the track, from which it is drawn through breakers and conveyed by electric hoists to the mechanical stokers. The ashes are drawn off on the basement floor level and elevated to reinforced concrete hoppers of two-car capacity, from which they are dropped into standard cars for removal. The power house chimney is 168 ft. high and 12 ft. in diameter at the base, tapering to 8½ ft, at the top. It is built of reinforced concrete lined with fire brick for 65 ft. from the bottom.

The interlocking plant is housed in a brick tower located still further south, the plant being of the electro-pneumatic type. Engines are cared for in a reinforced concrete engine house, to which is connected a shop equipped for making minor repairs. The coal used by locomotives will be handled by a locomotive crane direct from cars to locomotives.

The work of building the new station was under the direction of J. L. Lancaster, president of the Memphis Union Station Company; J. Werness, chief engineer, and W. F. Schulz, engineer of construction. The plans were drawn by John A. Galvin, Louisville, Ky. The total cost of the work is about $2,500,000. We are indebted to the St. Louis, Iron Mountain & Southern for photographs and information contained in the preceding article.

BUREAU OF EXPLOSIVES REPORT.

The Bureau for the Safe Transportation of Explosives and Other Dangerous Articles has issued the report of Colonel B. W. Dunn, chief inspector, for the year ending December 31, 1911. The number of railway lines belonging to the bureau has risen to 228, embracing nearly all the important roads in the country, and the work of the bureau is expanding both in amount and importance. Great improvement has been made in the transportation of dangerous articles, but still a large number of packages are found unsafe and condemned, as appears from the third and fourth items in the following table, which is condensed from a larger one which appears in the report.

	1911.	1912.
1. Number of railways members	228	174
2. Inspections of stations	8,572	8,031
3. Boxes of high explosives condemned as unsafe for transportation	6,591	10,902
4. Kegs of black powder thus condemned	1,205	1,291
5. Cars in transit inspected	1,412	647
6. Ditto, seriously violating regulations	210	235
7. Express inspections	1,027	.....

The chemical laboratory has inspected during the year 955 samples of explosives, fireworks, inflammable and cartridge paper.

The inspectors have been called upon to give so many lectures that they have not made as many inspections as otherwise would be possible. Ten accidents in transportation of explosives during the year caused $34,761 damage, as compared with $43,636 damage from 16 accidents in the preceding year. The number of persons killed was one in 1911 and two in 1910. Fires occurring in the transportation of dangerous articles other than explosives in the year 1911, numbered 222, and the property loss was $255,612. In this list of fires, the article which appears most frequently is charcoal, and the next, matches. Fires in heater cars numbered 27, causing a loss of $151,115. The disastrous explosion at Communipaw, N. J., occurred within the year covered by this report (February 1, 1911), and Colonel Dunn's report on it is printed in an appendix, but the case is not included in the tabular summary, for the reason that this freight had reached destination and had been delivered to the consignee. The property loss at Communipaw was not less than $250,000.

Two explosions of dynamite occurred where the shipment had been left on the railway premises longer than was necessary. The bureau has had difficulty in making consignees remove dangerous shipments promptly, but the revised regulations, now in force, empower the carrier to adopt extreme measures to secure the prompt removal of dangerous freight. It is expected that the railways will be induced to establish increased charges for storage on dangerous articles. In England explosives must be taken away from a freight station within twelve hours after arrival; if not taken, the goods may be sold by the company. Inflammable liquids must be taken away within four hours, or if not taken may be subjected to a storage charge of five shillings per ton per hour.

The revised regulations for the transportation of explosives, which have been issued by the Interstate Commerce Commission, and which went into effect January 1, 1912, contain specifications for shipping containers. It is impossible to secure uniform and efficient packing for dangerous articles, except through a mandatory law. The only way that a carrier can enforce proper rules is to refuse the freight, and under the present rigid law this can be done. The bureau expects to extend its activities over the railways of Canada.

Colonel Dunn offers a blank form for reporting violations of the law, and one for reporting accidents, which he recommends carriers to use. Some officer of the transportation department should see that regular reports are made and are sent to the chief inspector of the bureau.

The inspection of cars of explosives at junctions in the night time may be unsatisfactory, and Colonel Dunn recommends that where practicable cars should be shipped so as to pass interchange points in the day time.

Rough handling of cars bearing explosive placards still continues. One of the bureau's inspectors, who has had long experience as a yardmaster, is making a tour of the entire country to try and improve the practice in the large yards. On the 58 roads for a single year recently the payments for loss and damage of freight amounted to more than $26,000,000, of which a considerable percentage is undoubtedly due to rough handling of cars. A modern car will stand more rough handling than will the packages in it. Every large freight station should have a specially skillful loader to attend to dangerous freight.

The demand for lectures by the inspectors of the bureau has increased rapidly. The railway officers are urged to have their employees attend the lectures. A thousand persons can be instructed as easily as a small number.

Action has been taken by the bureau looking to the proper inspection and safeguarding of dangerous articles imported from foreign countries.

The Manizales to Rio Cauca railway has been subventioned by the federal government of Colombia at the rate of $15,920 per mile of railway constructed. The subvention is payable in gold or in 5 per cent. bonds. Arrangements are to be made for the construction of 62 miles of the line at once.

The Russian ministry of ways of communication has proposed spending $15,672,000 for locomotives and cars for the Amur railway. The estimate is now before the council of ministers. It includes as necessary stock 245 locomotives (of which 38 are for passenger trains and 207 for freight trains) 376 passenger cars and 6,569 freight cars. Although these quantities are put in the estimate it is proposed to use them only as they may be required, that is as the various sections of the line are opened for traffic. The minister of ways of communication desires authority to order now 200 locomotives, the cost of which should appear in the estimates of 1913.

General News Section.

The Chicago, Indianapolis & Louisville has increased the pay of its firemen, the advance amounting, it is said, in most cases, to 10 per cent.

The St. Joseph & Grand Island roundhouse at Hiawatha, Kan., together with a locomotive, several tenders and a motor car, were destroyed by fire on April 4.

The Bureau of Railway Economics has just issued an elaborate and comprehensive study of railway statistics based on the returns made to the Interstate Commerce Commission for the years 1900 to 1910 inclusive.

The Canadian Pacific has plans under way for the electrification of the section of this line known as the Rossland subdivision of the British Columbia division, between Castlegar Junction, B. C., and Rossland, 29 miles.

Beginning June 1 the hours of the day will be numbered from 1 to 24, from midnight to midnight, on all French railways and in the postal and telegraph service. A partial test in the telegraph service has given satisfactory results.

The lectures on First Aid to the Injured, given for the benefit of the employees of the Pennsylvania Railroad during the past year, numbered 270, and the attendance at these lectures aggregated 9,180 employees. Many local firemen and policemen attended these classes, being also invited to the lectures.

Several thousand clerks of the New York, New Haven & Hartford have made a formal demand for a revision of their rates of pay, asking for a general increase. It is said that most or all of these clerks had their pay increased in 1907, and that 2,000 of them received an additional 10 per cent. in June, 1910.

The Chicago & Eastern Illinois has placed in service between Chicago and St. Louis a new type of car, called the Lounge-Grill, in which a complete meal may be served at any time. Parties of four or six are accommodated in separate compartments. The car also contains the library and other facilities usually found in buffet cars.

The Chicago, Rock Island & Pacific has issued instructions that hereafter no reservations for Pullman space or accommodations will be made on Rock Island trains for persons traveling under any form of free transportation except on the understanding that it will be subject to sale for revenue business on demand before the departure of trains.

President B. L. Winchell, of the St. Louis & San Francisco, has invited the National Good Roads Association to appoint a committee of five representative clubwomen who are interested in the good roads movement to accompany the "good roads" train now being operated over the Frisco system during its trip through Illinois this summer.

The Covington amendment to the Panama Canal bill, which would compel all railways to divest themselves of ownership in water transportation lines will probably be amended in the House. It is hoped to secure the adoption of a clause permitting railways, the Interstate Commerce Commission assenting, to own and operate steamship lines that are a prolongation of their railway lines.

Emery R. Johnson, professor of transportation and commerce in the University of Pennsylvania and special commissioner on Panama traffic and tolls, in a statement made before the senate says that the operation of the canal will cost the government $30,000,000 a year. The items are: Expenditure attending operation of canal, $4,000,000; interest on investment, $11,000,000; military etsablishment of Canal zone, $15,000,000.

Statistics compiled by the Southern Pacific show that the mileage of its main line and second track protected by automatic block signals has increased from 102½ miles in 1902 to over 3,000 at present. More than 70 per cent. of the main line mileage is protected by block signals, of which approximately 100 miles are protected by the manual block signal system. In 1902 less than 3 per cent. of the company's mileage was equipped with block signals, and in 1903 the percentage had increased to over 60 per cent.

The results of the balloting of the eastern enginemen on whether to support their leaders to the extent of a strike had not been announced up to the time of our going to press. The conference committee of managers last week prepared pamphlets containing the demands of the men, the answer of the railways and editorials reprinted from a number of the country's leading newspapers. Each of the roads involved is sending copies to bondholders, shareholders, members of boards of trade, chambers of commerce, and other commercial bodies in its territory. About 175,000 have been printed.

H. G. Askew, statistician of the Texas railways, has made a compilation from the Interstate Commerce Commission reports to June 30, 1910, showing that for 17 years the Texas roads paid out in settlement of personal injury cases a yearly average of $117.74 per mile, while the roads of the United States, exclusive of Texas, paid out a yearly average of $59.88 per mile for this purpose. The total for the Texas roads during the period covered was $22,047,880, and for roads exclusive of Texas, $196,002,187. The percentage to gross earnings for the Texas roads was 2.137 per cent., and for the roads outside of Texas, .671 per cent.

The House committee on interstate and foreign commerce appears to be one of the most radical sections of the present Congress, numerous bills proposing important changes in transportation and other matters having already been reported. One of these bills was that prescribing a zone system of rates limiting the charges to be made for the transportation of parcels by express companies. This was only a week or two ago, but this week it is reported that the committee is considering in private sessions the Goeke bill, providing that the government shall take over the express companies, condemn their property and pay for it by the issue of government bonds.

Thomas Saddington, manager of the school of telegraphy, maintained by the Pennsylvania Railroad at Bedford, Pa., reports that since the establishment of that school in 1907, 214 students have been graduated and are now employed as telegraphers. This is a little less than two-thirds of the students that have been enrolled. The school has lately been equipped with a section of miniature double track railway with crossovers, sidings, and manual block signals. Although the telephone is now used extensively on the Pennsylvania, the teaching of the Morse telegraph is kept up. Students are also given a full course of instruction in the office work of a station agent.

Progress of the Safety Campaign.

The executive safety committee of the Chicago Great Western, which was organized early in the year, has issued a circular announcing that owing to the relief from the severe weather conditions of the winter the question of appointing local safety committees will be taken up at once, and that hereafter reports will be rendered monthly. A record will be kept by the executive safety committee of suggestions of employees which are adopted in order that the person proposing them may receive full credit for his ingenuity, thoughtfulness or interest in the welfare of the company and employees. In the circular are included a large number of suggestions addressed to various classes of employees regarding the avoidance of small acts which tend to cause accidents. A portion of the circular reads as follows:

"Causes of railway accidents may be divided into three classes, viz.: Carlessness, thoughtfulness and braggadocio.

"Carelessness may injure the one who is careless, or some innocent co-worker may suffer.

"Thoughtlessness is akin to carelessness, and is the outcome of trying to work with hands alone, when to do good work the brain must work in conjunction with the hands.

"Braggadocio is simply trying to show off. If you are on the vaudeville stage it is all right to pull off some stunt which will amuse onlookers and cause admiration, but railroading is too serious a business for showing off. Don't try to board an approaching switch engine by standing in the center of the track ahead of it. Don't wait until your train has gotten under fast headway before trying to board it. Don't flirt with the farmer's daughters from the top of a freight car when you ought to be looking out for that next bridge. In simple words, don't be foolish about a serious business."

General Manager H. J. Slifer has also issued a small vest-

pocket book of rules for train and engine employees, in which are printed in red and green ink several of the most important rules of caution.

F. G. Pettibone, second vice-president and general manager of the Gulf, Colorado & Santa Fe, has issued a circular to employees, calling attention to the fact that the number of persons killed on this road during 1911 showed an increase of ten over the year 1910, and asking the co-operation of employees in the effort to reduce the number of casualties. The circular gives a list of the fatalities to employees during the two years, together with the causes of the accidents, when known, and a large number of suggestions for the observance of employees in the effort to reduce accidents.

A "safety meeting," held at Cumberland, Md., on the Baltimore & Ohio, April 3, is reported on a preceding page.

The establishment of safety committees on the Wheeling & Lake Erie is noticed under another head. See also under State Commissions.

Governor Foss on the Lease of the Boston & Maine to the New Haven.

Governor Eugene N. Foss of Massachusetts, in a "message to the public," advocating the creation of a public service commission to improve the railway service, said in part: "If the legislature creates a powerful public service commission to control our railway service, then are the people ready to permit the New York, New Haven & Hartford to lease the Boston & Maine on the condition that it expends $100,000,000 in the actual connection of the tracks on the north and south of Boston, making a four-track tunnel under Boston for that purpose, electrifying all their combined trackage within the metropolitan area and bringing the whole system up to the highest standard of efficiency?

"No such lease ought to be granted unless the state first asserts its power of regulation and creates a commission powerful enough to enforce it.

"I think the designations New York, New Haven & Hartford, and Boston & Maine should be abandoned and the name New England Lines substituted; that this new corporation should maintain general offices in Boston and that all new securities must be offered for public sale in Boston on as favorable terms as in New York."

An Interesting Fruit Exhibit.

A number of employees of the Atchison, Topeka & Santa Fe shops at San Bernardino, Cal., were recently awarded a loving cup and a check for $100 as the first prize for the best exhibit at an orange show. The accompanying illustration shows the exhibit. The roadbed and the top of the engine tank were decorated with 1,400 dozen lemons. The boiler, cab and side of the tank were decorated with 700 dozen oranges, and the dome, front end, cylinders and air drums were decorated with 200 dozen tangerines. The locomotive is complete, even to the safety appliances. While on exhibition the wheels were made to revolve. The refrigerator car and caboose were complete models of Santa Fe equipment built to a small scale. Dolls, properly dressed, represented the engine and train crews. The engineer is shown leaning out of the cab window. The head brakeman is sitting in front of the refrigerator car and the conductor with a lantern in his hand is shown standing in the door of the caboose. The exhibit was prepared under the direction of H. S. Wall, superintendent of the San Bernardino shops.

Coal Mining Situation.

The anthracite coal operators, at the conference with the miners' representatives on April 10, proposed that the Anthracite Strike Commission of 1902 be reconvened with a view to arranging a new working agreement. This was in answer to the miners' contention that conditions have changed since the 1902 award. After discussion it was agreed to hold the proposition in abeyance and appoint a sub-committee to go over the whole situation. The sub-committee was then formed, composed of four of the operators' representatives and four of the miners, to make recommendations on which the conference can act later. There will be no further conferences until the sub-committee reports.

It is believed that the bituminous miners will be generally at work by about May 1.

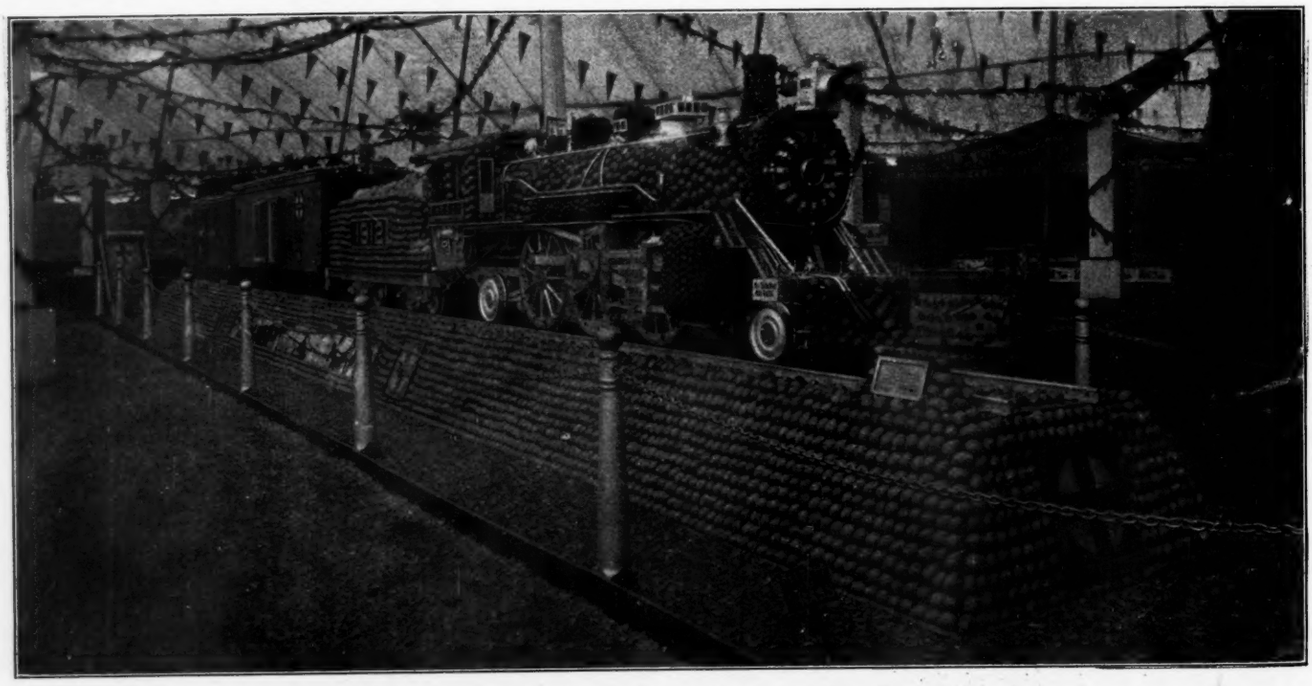
The majority of the British coal miners have resumed work.

"Safety First" on the Wheeling & Lake Erie.

B. A. Worthington, receiver of the Wheeling & Lake Erie, has issued a circular, dated March 30, establishing safety committees, like those on the Chicago & North Western and certain other roads. Following are the principal parts of this circular.

Notwithstanding the safeguards that have been provided and the precautions that have been taken to prevent accidents, the number of persons injured in the operation of railways has gradually increased from year to year, and the accidents which have occurred by reason of failure to use necessary care and diligence have more than kept pace with the accidents which are incident to the hazards of the service.

From the results of investigations, as well as personal observation, and from comparison of our records with the reports of other lines and with the reports of the Interstate Commerce Commission, it is pleasing to say that the record of the Wheeling



Fruit Exhibit Prepared by Santa Fe Employees at San Bernandino, Cal.

& Lake Erie with respect to accidents resulting in personal injuries has been comparatively good, and I take this opportunity of expressing my appreciation of the diligence and care that has been manifested by our employees.

However, many accidents might be prevented by the use of due care. Out of the total of 715 personal injuries reported during the year ending December 1, 1911, 414, or 58 per cent., were sustained in car and locomotive shops and roundhouses, where none of the occupations are considered as being hazardous. Although 99 per cent. of the engines and cars in the United States are equipped with automatic couplers, 209 employees were killed and 2,966 injured in one year in coupling and uncoupling cars, of which at least 86 of the deaths and 1,266 of the injuries were unquestionably due to the manner in which employees operated the automatic equipment.

This letter, however, is not written for the purpose of criticising employees, but to call attention to the plan which has been adopted for the betterment of present conditions, and to ask your hearty co-operation in the movement to secure greater safety and better results. This is a work that will be participated in by officers and employees alike. A central (or advisory) committee has been appointed, consisting of the following members:

H. T. Douglas, Jr., chief engineer, chairman; C. C. Needham, tax commissioner, vice-chairman; J. G. Code, superintendent; C. W. Coe, superintendent; J. E. O'Hearne, master mechanic; C. S. Morse, master car builder; J. F. Marshall, purchasing agent, and C. H. Holmes, secretary to receiver.

In addition to this committee, sub-committees have been appointed . . . . which will meet in the first week of each month. These will make their recommendations to the central committee, which will meet on the second Tuesday of each month. . . . This work is not inaugurated from selfish interests on the part of the company, but is a matter that directly concerns every employee. The company will continue its efforts to reduce and remove the elements of danger that may surround your work, and only asks that you assist in this work by reporting to your superior officer or to any member of the various sub-committees, conditions of ways or structures that appear to threaten injuries. *No safety appliance is effective in the hands of a careless man.*

If all employees will respond and will also endeavor to admonish or educate new or careless employees, a large decrease in personal injuries can be accomplished. . . .

From personal observation I know that we have in our service a great many employees, particularly among the older men, who observe every possible precaution to preserve the safety of passengers, of property and of themselves and other employees, and of these men I make a special request that they use their efforts to educate the men who are young in the service, by kindly advice as to proper methods of doing their work and the avoidance of unnecessary risk. . . .

Accompanying the receiver's circular Chairman Douglas announces that a meeting of the five local committees was held at Brewster on March 4, at which time the definite object of the organization and the methods of work were fully explained by Mr. Worthington. Another meeting of the Central Committee was to be held this week. Circulars are to be issued each month, calling attention to accidents which have resulted, and explaining in detail how such accidents could have been avoided, that the employees interested may carefully study the cause of the accident and benefit by the particular case as an object lesson for future guidance.

Government Operation of the Panama Railroad.

B. L. Winchell, president of the Frisco lines, has given out the following statement regarding some of the striking features of the operation of the Panama Railroad under government ownership:

The United States government, about six years ago, acquired the Panama Railroad and the steamship lines owned by it, and has since been operating them. The results will scarcely be used by those familiar with them as an argument for public ownership. The last year that the property was under private ownership and operation was 1904. The last full year of its ownership and management by the government was the fiscal year ended June 30, 1911. Very interesting and significant comparisons may be made between the statistics for those two years.

In 1904 it cost 62.9 per cent. of the gross earnings of the company—including both those from the railway and the steamship line—to pay total operating expenses. Never, during a period of ten years under private control, was the ratio of operating expenses to gross earnings more than 66 per cent.

In 1911, under government ownership the operating ratio was 70.8 per cent.; and while this was a much worse showing than had been made in any of the last ten years of private management, it was a relatively good showing for the government, for the operating ratio in 1905 under government management was 77.49 per cent.; in 1906, 79.54 per cent.; in 1908, 74.49 per cent.; and in 1910, 71.4 per cent.

These figures showing the larger ratio of operating expenses to earnings under government management would be of less significance if the amount of traffic handled and the total earnings from it had declined since the government took over the property. A declining traffic is likely to cause an increasing operating ratio. But the fact is that, owing to the large increase in the business of the railroad and its steamship lines due to work on the construction of the canal and to other causes, there has been an enormous increase in the traffic and earnings. The gross earnings of the railway and steamships in 1904, under private ownership, were $3,267,859.62; the total operating expenses were $2,024,180.81, and the net earnings, $1,243,678.81. In 1911 the traffic had so increased that the number of tons and the number of passengers hauled one mile per mile of road were actually greater than on the average railway of the United States. (The number of tons hauled one mile per mile of road was 1,186,344, as compared with only 1,071,086 ton miles per mile of road on the railways of the United States. The number of passengers hauled one mile per mile of road was 566,763, as compared with only 138,169 on the railways of the United States.) In consequence of this fine growth in traffic there was a great increase in earnings. The gross earnings of the railway and steamship lines in 1911 were $6,009,555.52, an increase over 1904 of 84 per cent.; operating expenses were $4,257,038.10, an increase over 1904 of 110 per cent.; and the net operating revenue was $1,752,517.42, an increase over 1904 of 41 per cent. It will be seen that even with the magnificent increase in gross earnings the increase in expenses was still greater in proportion.

Of the gross earnings of the company $4,149,444.66, were derived from the operation of the railway. The railway's mileage is fifty miles, so that its gross earnings were $80,298 per mile. Does the reader grasp the significance of that figure? If he does not, let him remember that the average gross earnings per mile of the privately owned railways of the United States in the year ended June 30, 1910, were but $11,553, or about one-seventh as much as those of the Panama Railroad.

One might be disposed to think that, as Uncle Sam is able with so little effort to earn gross receipts of over $80,000 per mile with his railway, while the managements of the privately owned railways of the United States are able to earn only about $11,000 per mile, Uncle Sam is the better business man. It would be well, however, before jumping to that conclusion, to inquire how much it costs Uncle Sam to handle the business, and still more important, how much he *charges* for handling it. The official figures show that while it costs the railways of the United States only $7,658 per mile to operate their lines, it costs Uncle Sam $49,482 per mile to run his railway. This leaves the Panama Railroad net earnings of $30,816 per mile, as compared with only $3,895 net per mile for the railways of the United States. This still seems a good showing until we examine the freight rates of the Panama Railroad, and find that in 1911 they averaged 4.14 cents per ton per mile, as compared with an average on the railways of the United States for the year ending June 30, 1910, of only 7.53 mills. In other words, the freight rates on the Panama Railroad under government ownership are five and one-half times as high as they are on the railways of the United States under private ownership. If the Panama Railroad had received in 1911 only the average rate per ton per mile that the railways of the United States received in 1910, its earnings per mile from freight traffic would have been reduced by about $40,000 per mile. As its net earnings per mile were $30,816, it would have failed by $9,184 per mile to earn enough money to pay its operating expenses, with the same average freight rate as obtained on the privately owned railways of the United States (and which it seems rather difficult to secure official sanction for increasing). If its passenger rates had been reduced to the same basis as those

in the United States its operating deficit would have been substantially larger.

Furthermore, its rate on "commercial freight"—that is, the rate paid by shippers other than the Isthmian Canal Commission—is very much more than its average rate of 4.14 cents per mile. The "commercial" rate across the Isthmus from Panama to Colon is $3.67 per ton, or over seven cents per ton mile, nearly ten times the average ton mile rate permitted our home roads, while that charged the Isthmian Canal Commission is only $1.09, or about two cents per ton mile.

But this is not all. After the extraordinary showing during the fiscal year 1911 already outlined, those charged with the operation of the Panama Railroad, and its subsidiary steamship lines, notified the steamship companies operating from San Francisco to the west coast of Panama that in future the railway and its steamships would demand for the movement between Panama and New York forty per cent. of the rates between San Francisco and New York. Previously they had accepted thirty per cent. Next year's ton mile earnings should loom even larger. Previously, the government had kept for its own steamship lines a monopoly of the business between Colon and New York by refusing to make through rates between the Panama Railroad and independent steamship lines to New York, but had allowed independent steamship lines to operate between Colon and Philadelphia. At the same time that it increased its proportion of the through rates it announced that the Panama Railroad would no longer make through rates in connection with independent steamship lines operating to and from Philadelphia. In other words, it took a monopoly of business moving through the port of Philadelphia, as it had before of business to and from New York.

When the railways of the United States tried to raise their rates, a law was passed giving the Interstate Commerce Commission control of such advances. Efforts to advance rates on the part of those handling the railway properties within the states are met by a demand for proof that the roads are economically and efficiently operated before they can increase their tariffs. It may be asked, why does the Interstate Commerce Commission not intervene to reduce or at least prevent advances in the rates of the Panama Railroad? The answer is that while the government has given the Interstate Commerce Commission authority to regulate the rates of the privately owned railways of the United States, it has not given the commission any authority to regulate the rates of its own railway. Uncle Sam as a railway proprietor evidently does not like the medicine he mixes for other railway owners. The rates on his railway are fixed by its management, from which there is no appeal to any other body.

Railway Tax Men's Association.

A national organization to be known as The Railway Tax Men's Association was organized at a meeting of tax officers and attorneys representing 25 railways, held in the offices of the Chicago & North Western, at Chicago on April 3, and a large number of members not present at the first meeting have since been enrolled. The following officers were elected: President, Frank P. Crandon, tax commissioner Chicago & North Western; vice-president, W. W. Baldwin, vice-president Chicago, Burlington & Quincy; secretary, Alfred E. Patten, tax agent Chicago, Burlington & Quincy; treasurer, J. W. Mulligan, assistant real estate and tax agent Chicago, Rock Island & Pacific; executive committee: The officers, G. G. Tunell, Atchison, Topeka & Santa Fe, and M. T. Sanders, tax commissioner Northern Pacific.

The object of the association, as set forth in the constitution, is "the consideration of the various taxing problems which arise in different states, for the purpose of devising accurate and adequate methods of determining the assessable value of railway property and its relation to the assessment of general property in the states in which it is located, and in the case of interstate roads to devise methods for apportioning the ascertained value of railway property to the different states and lesser taxing districts; also that aid may be given to the inauguration of a uniform, simple, efficient and equitable system of railway assessment and taxation throughout the country."

Members will include tax officials and attorneys of railways and other individuals of experience in taxation affairs that may be chosen by the unanimous vote of the members present at any meeting. It is intended to hold three meetings a year, on the second Wednesday of January, April and October, usually at Chicago. Speakers to address the meetings will be selected by the executive committee. At the organization meeting J. C. Davis, attorney for the Chicago & North Western at Des Moines, Ia., read a paper on Railway Taxation in Iowa.

Atlantic City Pier Fire.

On March 24 fire destroyed Young's amusement pier at Atlantic City, N. J. The fact was published in a large number of newspapers, with the result that some railway men and railway supply men got the impression that the pier that was burned was Young's Million Dollar Pier, on which the exhibition of railway appliances in connection with the annual conventions of the Master Car Builders' and Master Mechanics' associations will be held in June. This item is printed to make it clear that the latter pier was in no way involved.

Cleveland Engineering Society.

At the meeting of the Cleveland Engineering Society, held April 9, there was a symposium on the Elimination of Grade Crossings. Papers were presented on: Elimination of Grade Crossings from the City Standpoint, by Robert Hoffmann, city engineer; Elimination of Grade Crossings from the Railroad Standpoint, by Albert J. Himes (N. Y. C. & St. L.); and Embellishment of Railroad Crossings, by Frederick W. Striebinger.

American Institute of Electrical Engineers.

The two hundred and seventy-first meeting of the American Institute of Electrical Engineers will be held at Portland, Ore., April 16-20, 1912, at the Multnomah Hotel. On Thursday, April 18, A. H. Babcock, electrical engineer of the Harriman lines, will present a paper on The Operation of the 1200-v. System of the Southern Pacific Company. Several trips have been arranged to electrical plants of interest in the vicinity of Portland.

American Electric Railway Association.

The American Electric Railway Association has published convention bulletin No. 2, giving information on the hotel rates and the halls in which the exhibits will be shown in connection with the annual convention in Chicago, October 7-11.

American Railway Engineering Association.

The offices of the American Railway Engineering Association at Chicago will be removed on May 1 from the Monadnock block to Room 1011, Karpen building, 900 South Michigan avenue.

Western Railway Club.

Plans are being made for an elaborate vaudeville entertainment to be given in connection with the annual meeting of the Western Railway Club on May 21.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass.; annual, May 7-10, Richmond, Va.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Boston, Mass.; annual, May 10-11, San Francisco, Cal.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, New York; next convention, Seattle, Wash.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill.; annual, June 18-21, Detroit, Mich.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—O. G. Fetter, Carew building, Cincinnati, Ohio; 3d Friday of March and September.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York. Convention, October 7-11, Chicago.

AMERICAN ELECTRICAL RAILWAY MANUFACTURERS' ASSOC.—George Keegan, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York. Next session, May 15, New York.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Convention, 3d week in Oct., Baltimore, Md.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, Monadnock Block, Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOC.—J. W. Taylor, Old Colony building, Chicago. Convention, June 17-19, Atlantic City, N. J.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—M. H. Bray, N. Y. N. H. & H., New Haven, Conn. Convention, July 9, Chicago.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wemlinger, 13 Park Row, New York; 2d Tuesday of each month, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.
AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Baltimore, Md. Convention, 3d week in January, 1913, Chicago.
ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago; annual, June 26, 1912, Quebec, Que.
ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago; annual convention, May 22, 1912, Los Angeles, Cal.
ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry. Chicago. Semi-annual, June 11, Atlantic City, N. J.; annual, October 21-25, Chicago.
ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 135 Adams St., Chicago; annual, June 24, 1912, New York.
ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conrad, 75 Church St., New York. Convention, Oct. 7-11, Chicago.
CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and Aug., Montreal.
CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursdays, Montreal.
CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.
CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.
CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—L. S. Pomeroy, Old State Capitol building, St. Paul, Minn.; 2d Monday, except June, July, August and September, St. Paul.
ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 803 Fulton building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.
FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va.; annual, May 15, Buffalo, N. Y.
GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.
INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, 11, rue de Louvain, Brussels, Belgium; convention, 1915, Berlin.
INTERNATIONAL RAILWAY FUEL ASSOCIATION.—D. B. Sebastian, La Salle St. Station, Chicago. Convention, May 22-25, Chicago.
INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, Brown Marx building, Birmingham, Ala. Convention, July 23-26, Chicago.
INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio. Convention, August 15, Chicago.
MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York; annual convention, May 14-17, Pittsburgh, Pa.
MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago. Annual convention, June 12-14, Atlantic City, N. J.
MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOC. OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Convention, September, 10-13, Denver, Col.
NATIONAL RAILWAY APPLIANCES ASSOC.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Meetings with Am. Ry. Eng. Assoc.
NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.
NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.
NORTHERN RAILROAD CLUB.—C. L. Kennedy, C. M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.
OMAHA RAILWAY CLUB.—H. H. Maulick, Barker Block, Omaha, Neb.; second Wednesday.
PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill.; 2d Tuesday.
RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.
RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 2 Rector St., New York.
RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.
RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOC.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc. Ry. Elec. Engrs.
RAILWAY GARDENING ASSOCIATION.—J. S. Butterfield, Lee's Summit, Mo.; next meeting, August 13-16, Roanoke, Va.
RAILWAY INDUSTRIAL ASSOCIATION.—G. L. Stewart, St. L. S. W. Ry., St. Louis, Mo.; annual, May 12, 1912, Kansas City, Mo.
RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa.
RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio. Convention, May 20-22, Buffalo, N. Y.
RAILWAY SUPPLY MANUFACTURERS' ASSOC.—J. D. Conway, 2135 Oliver Bldg., Pittsburgh, Pa. Meetings with M. M. and M. C. B. assocs.
RAILWAY TEL. & TEL. APPLIANCE ASSOC.—W. E. Harkness, 284 Pearl St., New York. Meetings with Assoc. of Ry. Teleg. Sups.
RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday, except June, July and August.
ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill.; September 10-13, 1912, Buffalo, N. Y.
ST. LOUIS RAILWAY CLUB.—B. W. Fraumenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.
SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.
SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago.
SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.
SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.
TOLEDO TRANSPORTATION CLUB.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.
TRAFFIC CLUB OF CHICAGO.—Guy S. McCabe, La Salle Hotel, Chicago; meetings monthly, Chicago.
TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.
TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.
TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago; annual, June 18, 1912, Louisville, Ky.
TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.
TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.
TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.; August, 1912.
WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.
WESTERN RAILWAY CLUB.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.
WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Monday in month, except July and August, Chicago.

Traffic News.

A shipment of Bibles filling a 36-ft. box car is being taken westward over the Atchison, Topeka & Santa Fe en route from New York to Los Angeles for the Gideon society.

The Chicago freight and passenger offices of the Pennsylvania lines have been removed to the eighth floor of the new Insurance Exchange building, 175 West Jackson boulevard.

A special train of mail cars, which arrived at Oakland, Cal., from the East over the Southern Pacific on April 5, delivered there 350 tons of mail, the trains for several days having been detained by floods in Nebraska and east of there.

At the annual meeting of the Cincinnati Passenger Traffic Club on April 6, C. H. Wiseman, district passenger agent of the Baltimore & Ohio Southwestern, was elected president, and W. D. Cornell, traveling passenger agent of the Chicago & Alton, was re-elected secretary and treasurer.

The Business Men's League of St. Louis has appointed F. L. Robinson as traveling service agent in connection with the St. Louis package car service. Mr. Robinson's duties will be to keep in close touch with the merchants and to co-operate with the railways in improving the service.

The freight carried over the Tehuantepec National Railway during the last fiscal year amounted to 924,900 tons, an increase of 292,218 tons over the preceding year. The movement from the Pacific to the Atlantic terminus was 478,888, and in the opposite direction, 445,202. In the preceding year the eastward movement was 366,826, and the westward, 265,046. A large part of the eastbound freight is sugar from the Hawaiian Islands, which, when the canal is finished, will be carried across the Isthmus of Panama.

The Illinois railways at a hearing before the Illinois railway commission last week voluntarily withdrew a proposed advance in the rates on gravel to Chicago from so-called "inner zone" points. The advance from 1½ to 2 cents per 100 lbs. was attacked in a complaint by ten sand and gravel companies that asked that a new rate of one cent be established. When the advance was withdrawn the complainants also withdrew their petition. A hearing was held at Chicago on Monday before Examiner Burchmore of the Interstate Commerce Commission on the proposed advance from 1¾ to 2 cents to Chicago from so-called "outer zone" points, including Beloit and Janesville, Wis.

The Chicago, Rock Island & Pacific, through the medium of the *Rock Island Employees' Magazine*, has invited any of its general office employees who may be in the clutches of so-called loan sharks on account of indiscretions or misfortunes to take advantage of the services of the legal department without cost to them in the proper adjustment of their claims. It is announced that admission of being in the hands of the sharks will not prejudice the position of any such employees and will not be held against them in their record. It is stated that as a rule nothing can be done unless the employee has already paid the lender at least the amount of cash actually received, together with the legal interest thereon to date. The offer is made to the general office employees first; later it will be extended to other branches of the service.

The National Industrial Traffic League has promulgated a copy of a proposed uniform code of demurrage and car service rules as recommended by a joint conference committee representing the league and the American Railway Association which met at Atlantic City on March 28, Interstate Commerce Commissioner Franklin K. Lane presiding. With the joint conference code are presented in parallel columns the present rules and a set of rules recommended by a conference of the League's committee together with representative shippers not connected with the league held at Washington on February 27 and 28, for the purpose of drafting a new code to be made the basis of negotiations with the committee from the American Railway Association. With the conclusion of certain preliminary steps to be taken by the American Railway Association committee, the joint conference recommendations will be submitted to the Interstate Commerce Commission for approval.

Demurrage Rates to Come Before Commission.

The Pacific Car Demurrage Bureau, San Francisco, reports for the month of February that the proportion of intrastate freight cars held overtime was 1.4 per cent., while on cars carrying interstate traffic the percentage held beyond the free time was 2.13, the rate on the former being $3 a day, and on the latter $1 a day. The better result shown by the operation of the higher rate is only a repetition of what has been shown in former months, as the readers of the *Railway Age Gazette* have been informed. On January 29, last, the Bureau issued a tariff announcing that after March 8 the $3 rate would be applied to all cars, including those carrying interstate shipments, but on February 29 the Interstate Commerce Commission suspended this tariff until July 6, "it appearing that the rights and interest of the public would be injuriously affected" by the proposed incerase. Mr. Mote, the manager, naturally feels disappointed at this long postponement, declaring with reason, that the two years' experience of the bureau with a $6 rate and a $3 rate ought to be sufficient to convince anyone of the justice and economic advantage of a high rate.

Car Surpluses and Shortages.

Arthur Hale, chairman of the committee on relations between railways of the American Railway Association in presenting statistical bulletin No. 115-A, giving a summary of shortages and surpluses by groups from November 23, 1910, to March 27, 1912, says:

"The total surplus March 27, 1912, was 52,682 cars; March 13, 1912, was 46,028 cars; March 29, 1911, was 196,217 cars. Compared with the preceding period there is an increase of 6,654 cars, of which 1,771 are box and 2,696 are coal cars. The increase in box cars is principally in groups 1 (New England Lines) and 6 (Iowa, Illinois, Wisconsin, Minnesota and the Dakotas). The increase in coal car surplus is general except in groups 2 (New York, New Jersey, Delaware, Maryland and eastern Pennsylvania) and 10 (Oregon, Idaho, California, Arizona and Washington).

"The total shortage March 27, 1912, was 33,974 cars; March 13, 1912, was 42,985 cars; March 29, 1911, was 1,330 cars. Compared with the preceding period there is a decrease of 9,011 cars, of which 6,176 are box and 3,550 coal cars, with an increase in miscellaneous cars of 712. The decrease in box cars is general throughout the country, with the exception of groups 1 (as above) and 3 (Ohio, Indiana, Michigan and western Pennsylvania), where there is a slight increase. The decrease in coal cars is mainly in groups 2, 3 (as above) and 4 (the Virginias and Carolinas). Compared with the same date of 1911 there is a decrease in total surplus of 143,535 cars, of which 25,865 is in box and 97,387 in coal cars; and an increase in total shortage of 32,644 cars, of which 19,029 is in box and 8,148 in coal cars. Improved weather conditions have probably contributed to the increase in surplus cars as compared with the preceding period as well as to the reduction in the total shortage."

The accompanying table gives car surplus and shortage figures by groups for the last period covered in the report, and the diagrams show total bi-weekly surpluses and shortages in 1907 to 1911.

North Western to Advance Chicago Suburban Fares.

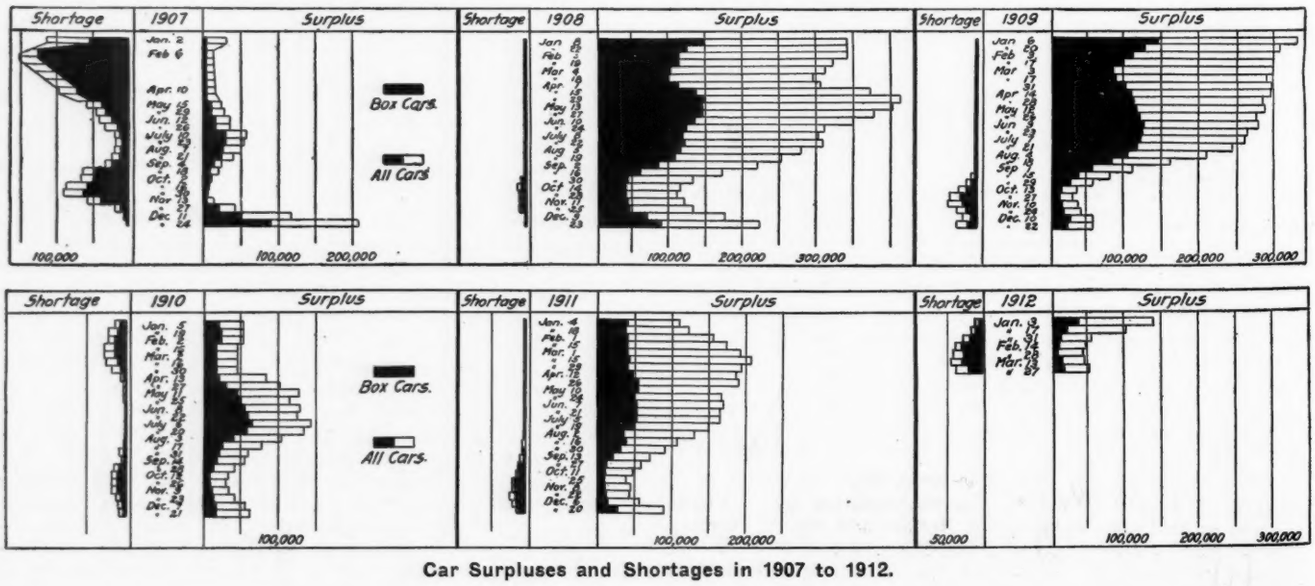
The Chicago & North Western has announced its intention of advancing the rates for its 25-ride commutation tickets on April 25, in the Chicago suburban district, which extends as far north as Waukegan, Ill., by amounts ranging from 25 to 40 cents a ticket. The present rates on these tickets average about half a cent a mile. On Sunday, March 31, twelve trains in the suburban service were discontinued and additional cars were placed on some of the trains.

Increases in the cost of operation, particularly in the fuel item,

CAR SURPLUSES AND SHORTAGES.

Date.	No. of roads.	Surpluses Box.	Flat.	Coal gondola and hopper.	Other kinds.	Total.	Shortages Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.
Group *1.—March 27, 1912	7	680	1,390	1,102	148	3,320	287	63	200	194	744
" 2.— " 27, 1912	26	302	97	1,200	523	2,122	1,047	0	2,097	177	3,321
" 3.— " 27, 1912	29	0	397	1,185	2,162	3,744	5,796	158	1,674	2,085	9,713
" 4.— " 27, 1912	10	189	48	353	1,027	1,617	2,179	168	3,234	409	5,990
" 5.— " 27, 1912	19	79	49	55	697	880	2,136	85	811	105	3,137
" 6.— " 27, 1912	23	3,703	233	3,102	3,497	10,535	2,192	59	65	252	2,568
" 7.— " 27, 1912	3	135	227	980	209	1,551	0	0	0	0	0
" 8.— " 27, 1912	15	2,520	515	1,622	1,795	6,452	40	30	63	705	838
" 9.— " 27, 1912	8	1,799	130	200	635	2,764	50	0	0	40	90
" 10.— " 27, 1912	21	5,274	3,091	2,741	8,304	19,410	15	15	15	0	45
" 11.— " 27, 1912	5	0	133	0	154	287	5,671	326	0	1,531	7,528
Total	166	14,681	6,310	12,540	19,151	52,682	19,413	904	8,159	5,498	33,974

*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan and Western Pennsylvania lines; Group 4—West Virginia, Virginia, North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida lines; Group 6—Iowa, Illinois, Wisconsin, Minnesota and the Dakotas lines; Group 7—Montana, Wyoming and Nebraska lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Oregon, Idaho, California and Arizona lines; Group 11—Canadian lines.



Car Surpluses and Shortages in 1907 to 1912.

are given by the railway as reasons for the advance in rates and the reduction in service. It is declared that suburban service was operated during the last six months of 1911 at a loss at the rate of about $200,000 a year. On the Galena division the average number of passengers per train was 63, on the Milwaukee division, 98, and on the Wisconsin division, 72. The average number of cars per train was 4½, 6 and 4½ respectively.

Before definite announcement of the advance in rates a warning was given the public, in the form of a statement to the newspapers, by A. C. Johnson, passenger traffic manager, saying that it was not impossible that some increases would be made in suburban rates of fare. The statement said in part:

"The railways that operate their own coal mines, thereby providing fuel at practically first cost, express great anxiety on account of the recent advance in the price of mining, which will add virtually 10 cents a ton to the cost of production. This is on top of a similar advance made only two years ago; the advance in the two periods, i. e., 1910 and 1912, aggregates 20 cents a ton, and to a road burning 12,000 or 15,000 tons of coal every 24 hours, this means a very large cost in operating expense, which it is extremely difficult to neutralize or nullify by the inauguration of economies in any direction.

"The North Western claims it is particularly hard hit on account of having such a large proportion of its coal consumption in passenger service. There is very much less efficiency developed in a ton of coal in passenger service than in freight due to high speed, light train load, frequent stops, etc., and this is aggravated in the case of suburban service like the Illinois Central and North Western maintain.

"North Western statistics show that while 15 per cent. of its passenger train mileage is suburban, or short haul, at least, 30 per cent. of its passenger train consumption of fuel is in this same service. Scientific railroading has developed numerous ways and means by which railways economize in the handling of freight, i. e., heavier locomotives, larger trains, better car loading, slower speed, etc., but none has been able, thus far, to develop economies of any particular moment in passenger service. The current increases in prices of coal will doubtless inspire them to renewed activities along these lines, and it is not impossible that they may make some increases in suburban rates of fare."

Report of Waterways Commission.

The National Waterways Commission has made a report recommending that additional legislation be enacted to prevent the elimination of water competition and to protect the public against the raising of water rates. The Interstate Commerce Commission should be clothed with greater control over water lines. Every water carrier engaged in interstate commerce which is owned or controlled by a railway, or in which a railway is in any way interested, and also every independent water carrier which operates over a specified route should be placed under control of the Interstate Commerce Commission. It is also recommended that the Interstate Commerce Commission be empowered to establish physical connection between the terminals of railway and boat lines where possible. Adequate terminal facilities for water lines should be provided. Where water frontage necessary for the establishment of public terminals is held undeveloped by private interests, a special act of the legislature should be passed empowering the state or municipal officers to condemn such property for public use.

There is great need of increasing the power of the Interstate Commerce Commission over joint rates and through routes between rail and water lines. . . . It is also desirable that the commission have power to compel railways to charge less than the local rates to all lake, river and seaports on through traffic to be exchanged with boat lines engaged in domestic trade. Such reduced rates are now voluntarily granted in some cases, especially along the Great Lakes. . . . The protection afforded the waterways by section 4 of the act to regulate interstate commerce, as amended in 1910, is not sufficient for the preservation and the growth of water transportation. The lack of adequate regulations makes it possible for the railways to effectually control or to crush out water competition through their ownership and control of boat lines. It is a well-known fact that the trunk line railways through their control over terminals at Buffalo and their ownership of steamship companies on the Great Lakes have been able to dominate the lake and rail package freight business between New York and Chicago, also to a considerable extent the grain traffic.

On the business thus controlled the water rates have risen, while on the coal, iron and grain traffic not controlled by railways the water rates have steadily declined. In like manner the New York, New Haven & Hartford practically dominates water transportation on Long Island Sound. Independent companies have been unable to compete successfully. The steamship companies plying between the north Atlantic and Southern ports in the coastwise trade are likewise working in harmony with the connecting and competing railways by which they are owned or controlled, so that little if any active competition exists. Also on some rivers the railways have acquired control of packet lines.

While this rapidly increasing control of railways over water lines tends to bring about that harmony and co-operation between them which is necessary for the development of transfer traffic, it also has possibilities of harmful results which require regulation. Where the railways grant prorating arrangements to boat lines which they own or control while denying the same privilege to competing independent lines the latter are practically precluded from securing any transfer traffic.

Crop Conditions.

The crop reporting board of the United States department of agriculture estimates that the average condition of winter wheat on April 1 was 80.6 per cent. of a normal, against 83.3 on April 1, 1911, 80.8 on April 1, 1910, and 86.1, the average condition for the past 10 years on April 1. There was a decline in condition from December 1, 1911, to April, 1912, of 6.0 points, as compared with an average decline in the past 10 years of 3.3 points between these dates.

The average condition of rye on April 1 was 87.9 per cent. of a normal, against 89.3 on April 1, 1911, 92.3 on April 1, 1910, and 89.8, the average condition for the past 10 years on April 1.

Comparisons for winterwheat and rye states follow, figures representing per cent. normal:

State or Division.	Winter Wheat. Condition April 1. 1912.	1911.	10-yr. av.	Condition Dec. 1, 1911.	Rye. Condition April 1. 1912.	1911.	10-yr. av.	Condition Dec. 1, 1911.
Vermont	..	..	..	..	95	93	95	100
Massachusetts	..	..	..	..	93	87	92	98
Connecticut	..	..	..	..	93	89	96	97
New York	89	85	89	98	90	88	91	97
New Jersey	88	89	89	90	89	91	91	94
Pennsylvania	85	87	88	92	85	90	90	93
N. At. Div.	86	87	88	93	87	90	91	94
Delaware	88	84	88	94	90	85	88	94
Maryland	90	81	87	94	90	84	90	92
Virginia	89	85	86	94	88	88	87	95
West Virginia	89	85	84	95	91	87	87	94
North Carolina	87	89	89	88	89	88	88	92
South Carolina	83	87	88	87	85	88	88	93
Georgia	81	90	88	89	84	90	90	94
S. At. Div.	88	86	87	92	89	88	89	94
Ohio	63	84	82	83	72	86	85	88
Indiana	61	86	84	82	72	92	89	92
Illinois	62	82	88	79	75	90	92	92
Michigan	80	88	85	86	86	90	88	89
Wisconsin	92	85	90	94	93	91	93	95
N. C. East	64	85	85	82	86	90	90	92
Minnesota	..	..	..	..	92	85	89	96
Iowa	91	89	89	96	93	92	94	97
Missouri	76	91	87	85	83	92	90	94
North Dakota	..	..	..	..	87	80	..	93
South Dakota	..	..	..	..	90	89	92	95
Nebraska	93	86	89	92	95	86	91	95
Kansas	85	75	84	88	89	75	87	89
N. C. West	85	81	86	89	91	85	90	95
Kentucky	70	89	86	83	75	91	87	88
Tennessee	81	86	86	88	82	88	87	92
Alabama	83	91	88	90	86	88	89	89
Mississippi	79	86	88	87	..	..	..	..
Texas	88	85	80	72	80	95	78	80
Oklahoma	82	55	81	78	85	65	84	74
Arkansas	75	87	87	86	83	88	87	87
South Central	80	76	83	80	79	92	86	89
Montana	94	96	..	94	95	93	96	97
Wyoming	95	95	..	96	95	98	95	98
Colorado	92	92	..	88	93	82	88	93
New Mexico	91	..	..	77	94	..	..	..
Arizona	94	..	..	100	95	..	..	..
Utah	93	95	..	96	90	98	100	98
Nevada	97	105	..	93	97	..	..	..
Idaho	97	98	86	94	97	98	99	97
Washington	96	97	90	91	97	95	94	96
Oregon	98	97	92	98	100	98	96	100
California	80	88	92	75	85	96	93	82
Far Western	94	94	91	91	94	97	94	94

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF FEBRUARY, 1912.

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance										
		Freight.	Passenger.	Total, inc. misc.	Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	143	$94,380	$32,364	$137,517	$18,922	$32,254	$3,998	$49,416	$4,913	$109,503	$28,014	—$892	$4,200	$22,922	—$5,479
Alabama Great Southern	309	265,153	91,104	385,305	45,299	80,620	11,593	128,097	9,599	275,208	110,097	—850	14,485	94,762	605
Ann Arbor	292	124,155	29,388	163,163	13,265	21,125	3,661	67,358	6,767	112,176	50,987	—3,966	13,985	33,036	3,514
Arizona Eastern	366[1]	147,815	33,974	191,209	22,784	14,765	2,305	46,941	7,093	93,888	97,321	215	8,100	89,436	69,908
Atlanta & West Point	93	61,177	35,539	106,342	11,140	18,971	4,989	31,906	4,386	71,392	34,950	345	5,189	30,106	—1,776
Atlanta, Birmingham & Atlantic	662	214,661	43,785	275,326	29,530	46,452	17,747	117,265	12,874	223,868	51,458	.....	15,700	35,758	—14,329
Atlantic City	167	56,360	37,105	98,799	24,242	13,477	1,447	63,950	758	103,874	—5,075	4,483	7,000	—16,558	10,786
Baltimore & Ohio—System	4,433[2]	5,546,395	899,231	6,802,614	670,483	1,392,796	156,708	2,838,384	170,550	5,228,921	1,573,693	—31,853	246,099	1,295,741	83,214
Buffalo & Susquehanna *R. R.*	265	132,731	6,886	144,199	26,593	29,542	1,490	64,559	6,758	128,942	15,257	.....	2,600	12,657	—5,115
Buffalo & Susquehanna *Ry.*	91	37,986	5,670	45,503	7,373	25,165	503	27,771	2,575	63,387	—17,884	—8	1,400	—19,292	—1,467
Carolina, Clinchfield & Ohio	238[3]	163,403	9,190	175,583	10,893	22,129	5,802	34,604	6,826	80,254	95,329	.....	8,000	87,329	21,521
Carolina, Clinchfield & Ohio of S. C.	18	12,088	1,347	13,714	533	84	1,084	2,795	394	4,890	8,824	.....	500	8,324	3,756
Central of Georgia	1,915	840,898	269,237	1,222,550	157,010	176,651	31,033	433,201	37,541	835,436	387,114	5,614	54,100	338,628	13,388
Central of New Jersey	672[4]	1,654,142	354,314	2,144,857	161,452	316,809	26,572	690,806	34,182	1,229,821	915,036	1,495	180,495	736,036	160,872
Central Vermont	411	200,409	56,874	280,515	27,476	52,912	9,440	183,521	8,401	278,750	1,765	—221	12,200	—10,656	12,588
Chesapeake & Ohio Lines	2,281[5]	2,222,850	334,060	2,666,019	218,435	578,577	49,506	908,774	65,303	1,820,595	845,424	—4,551	84,750	756,123	137,837
Chicago & Alton	1,025	800,098	274,647	1,168,204	106,888	280,947	40,775	476,343	30,373	935,326	232,878	—2,060	36,000	194,818	6,042
Chicago & Erie	270	335,507	39,706	420,377	—1,945	96,569	22,362	253,598	10,458	383,042	37,335	.....	16,450	20,885	—5,856
Chicago, Burlington & Quincy	9,074[6]	4,822,159	1,370,011	6,771,218	518,496	1,226,651	126,666	2,531,638	190,683	4,594,134	2,177,084	—14,293	272,105	1,890,686	86,827
Chicago, Indiana & Southern	359[7]	343,741	19,331	372,105	42,343	92,714	8,974	147,576	8,659	300,266	71,839	—111	13,000	58,728	39,847
Chicago, Indianapolis & Louisville	617	344,190	102,458	493,348	71,732	83,184	17,306	204,280	13,246	389,748	103,600	.....	22,652	80,948	—4,792
Chicago, Rock Island & Gulf	477[8]	161,030	45,640	223,239	27,066	21,441	10,633	89,815	8,267	157,222	66,017	—265	8,122	57,630	—3,732
Chicago, Terre Haute & Southeastern	351	160,445	13,521	177,695	17,612	28,700	3,499	61,647	7,546	119,004	58,691	—334	8,700	49,657	27,111
Cincinnati, New Orleans & Texas Pacific	337	591,781	150,312	781,081	76,653	193,374	20,361	239,977	20,717	551,082	229,999	—3,467	21,800	204,732	—26,604
Cincinnati Northern	245[9]	84,498	12,153	100,541	17,881	27,303	2,835	52,120	3,549	103,688	—3,147	.....	5,300	—8,447	—6,469
Cleveland, Cincinnati, Chic. & St. Louis	2,012[10]	1,731,665	496,003	2,424,027	254,852	455,953	68,074	1,150,576	51,053	1,980,508	443,519	—4,047	95,000	344,472	59,605
Colorado Midland	338	93,180	13,309	118,665	12,900	20,990	7,040	58,240	5,465	104,635	14,030	—320	8,000	5,710	12,689
Colorado & Southern	1,053[11]	502,786	70,818	620,948	63,526	128,038	10,798	214,155	22,585	439,102	181,846	—947	29,200	151,699	22,959
Denver & Rio Grande	2,545[12]	1,272,791	264,212	1,613,552	150,137	356,495	47,856	626,176	50,855	1,231,519	382,033	—8,535	78,000	295,498	22,237
Detroit, Grand Haven & Milwaukee	191	92,000	33,500	147,722	16,114	30,526	5,919	105,718	4,740	163,017	—15,295	—16	2,880	—18,191	—12,725
Duluth, Missabe & Northern	342[13]	115,366	30,349	150,752	44,077	44,709	1,600	74,011	11,025	175,422	—24,670	—823	6,110	—31,603	—95,466
Duluth, South Shore & Atlantic	624[14]	162,980	49,563	223,763	33,579	33,100	8,405	103,479	7,228	185,791	37,972	—2,414	18,000	17,558	20,032
Erie	1,995	2,896,989	572,084	3,797,889	284,510	757,261	91,207	1,528,907	102,184	2,764,069	1,033,820	—57,976	163,026	812,818	—117,260
Galveston, Harrisburgh & San Antonio	1,339	543,976	264,418	858,949	103,735	160,812	35,381	342,279	29,571	671,778	187,171	—2,538	35,404	149,229	—37,643
Georgia	307	211,037	63,663	292,706	27,614	45,665	10,979	145,695	7,395	237,348	55,358	.....	6,775	48,583	—7,953
Georgia Southern & Florida	395	117,770	70,158	210,536	21,122	39,908	7,812	81,635	8,414	158,891	51,645	.....	10,123	41,522	—3,696
Great Northern	7,345[15]	3,139,050	828,676	4,322,292	444,229	662,914	90,832	1,399,269	90,277	2,687,521	1,634,771	—11,799	294,213	1,328,759	670,198
Hocking Valley	352[16]	494,339	53,468	570,430	50,470	97,337	8,100	193,892	16,046	365,845	204,585	.....	28,800	175,785	97,129
Houston, East & West Texas	191	75,840	19,775	102,061	18,674	10,583	2,128	38,370	3,647	73,402	28,659	.....	3,916	24,743	—5,485
Houston & Texas Central	789	242,921	100,531	381,337	76,342	80,099	22,955	230,933	19,589	429,918	—48,581	—1,403	20,558	—70,542	—94,709
Indiana Harbor Belt	105[17]	.....	.....	233,571	18,194	29,820	3,041	109,487	6,951	167,493	66,078	175	5,000	61,253	45,260
Louisiana Western	208	96,878	57,776	162,616	18,653	25,728	8,100	59,062	6,224	117,767	44,849	876	6,902	38,823	—13,704
Louisville, Henderson & St. Louis	200	69,068	29,473	106,072	18,508	13,436	4,493	36,922	2,845	76,204	29,868	309	3,000	27,177	13,778
Missouri, Kansas & Texas	1,744[18]	910,309	303,362	1,303,173	100,366	194,978	38,622	468,391	41,668	844,025	459,148	—2,588	52,000	404,560	9,328
Missouri, Kansas & Texas of Texas	1,346[19]	521,559	226,030	810,197	151,597	84,926	24,598	520,113	30,390	811,624	—1,427	—2,810	22,011	—26,248	—99,007
Morgan's La. & Tex. R. R. & S. S. Co.	404	251,149	116,353	394,399	60,093	51,246	14,019	170,840	12,980	309,178	85,221	—2,334	18,698	64,189	13,706
Nevada Northern	165	110,820	10,822	124,544	11,437	15,574	356	26,841	3,514	57,722	66,822	.....	5,947	60,875	21,539
New Orleans, Great Northern	282	91,308	25,226	126,812	18,370	16,575	2,719	43,881	7,049	88,594	38,218	—69	1,800	36,349	—13,483
New York, Chicago & St. Louis	562	808,946	74,959	913,835	93,870	119,020	48,557	448,114	17,306	726,867	186,968	—2,522	32,000	152,446	22,901
New York, Susquehanna & Western	152	156,865	41,146	224,691	14,848	22,459	1,252	100,537	3,832	142,928	81,763	—5,003	17,874	58,886	—27,119
Norfolk & Western	2,104[20]	2,661,855	266,631	3,049,562	323,041	654,061	49,784	1,007,455	59,160	2,093,501	956,061	—507	120,000	835,554	137,157
Northwestern Pacific	404[21]	71,819	113,592	206,677	49,675	36,723	3,211	95,947	9,629	195,185	11,492	.....	11,077	415	9,490
Pecos & Northern Texas	479[22]	137,151	31,080	179,753	12,215	35,473	3,340	63,093	6,585	120,906	59,047	.....	6,209	52,838	51,817
Peoria & Eastern	352	199,947	45,776	262,507	29,711	40,828	4,520	118,805	5,534	199,398	63,109	.....	9,800	53,309	33,951
Philadelphia & Reading	1,014[23]	2,989,696	472,569	3,617,915	254,331	673,368	42,090	1,298,293	62,918	2,331,000	1,286,915	7,381	90,556	1,203,740	210,119
Pittsburgh & Lake Erie	215[24]	1,114,777	104,322	1,257,911	138,701	175,978	12,014	347,444	23,425	697,562	560,349	—362	31,000	528,987	95,304
Pittsburgh, Shawmut & Northern	278[25]	154,024	6,566	162,368	11,286	30,418	1,008	49,847	4,161	96,720	65,648	.....	1,571	64,077	48,495
Port Reading	21	131,363	.....	131,648	6,645	121	30	47,835	99	54,730	76,918	9,695	3,800	82,813	18,824
Richmond, Fredericksburg & Potomac	83	100,955	97,519	224,328	18,718	24,596	2,785	85,848	5,688	137,635	86,693	.....	1,094	85,599	11,298
St. Joseph & Grand Island	319	78,762	24,572	114,382	12,214	27,865	4,511	53,129	4,859	102,578	11,804	102	6,396	5,510	10,824

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF FEBRUARY, 1912—(CONTINUED).

Name of road.	Mileage operated at end of period.	Operating revenues: Freight.	Passenger.	Total, inc. misc.	Operating expenses: Maintenance: Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.	Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
St. Louis & San Francisco	4,732	$2,175,143	$780,376	$3,208,919	$293,940	$427,782	$103,968	$1,258,497	$104,903	$2,189,070	$1,019,849	.....	$158,677	$861,172	$2,443
St. Louis, Brownsville & Mexico	510[26]	106,991	62,442	183,021	41,649	15,650	2,928	71,960	4,542	136,729	46,292	.....	5,150	41,142	8,334
St. Louis Merchants' Bridge Terminal	9	.....	350	166,708	22,807	9,296	428	89,764	4,908	127,203	39,505	.....	5,600	33,905	28,403
St. Louis Southwestern	843[27]	538,453	90,890	660,707	60,030	99,746	28,280	158,877	22,793	369,726	290,981	—$1,021	22,563	267,397	25,205
St. Louis Southwestern of Texas	703	262,297	58,548	347,454	62,415	82,117	13,786	171,284	17,947	347,549	—95	—249	10,945	—11,289	—64,770
San Pedro, Los Angeles & Salt Lakes	1,115[28]	465,344	233,132	742,169	73,723	189,003	30,809	268,773	16,744	579,052	163,117	—2,489	24,701	135,927	133,967
Seaboard Air Line	3,070[29]	1,337,496	453,484	1,970,456	289,189	240,887	61,584	734,682	54,655	1,380,997	589,459	—2,430	75,000	512,029	—134,822
Southern Kansas of Texas	125	79,357	14,997	101,339	10,913	23,457	2,213	40,350	3,868	80,801	20,538	.....	2,572	17,966	13,339
Southern Pacific Co	6,204[30]	3,910,762	2,439,915	6,829,873	752,777	925,645	177,959	2,104,054	201,753	4,161,188	2,668,685	—8,906	359,420	2,300,359	218,785
Sunset	59[31]	53,955	14,474	70,758	11,101	868	40	20,861	1,065	33,935	36,823	.....	3,390	33,433	—8,790
Terminal R. R. Ass'n of St. Louis	35[32]	.....	236	248,115	29,700	27,962	635	95,366	3,881	157,544	90,571	9,552	26,643	73,480	20,241
Texas & New Orleans	458	202,044	77,240	297,392	48,637	70,640	9,063	136,333	16,754	276,427	20,965	267	13,683	7,549	—57,701
Texas & Pacific	1,885	1,004,865	281,092	1,371,944	197,578	224,921	31,265	710,796	49,710	1,214,270	157,674	7,506	54,793	110,387	25,693
Toledo & Ohio Central	441[33]	326,973	39,022	380,817	48,282	84,067	6,172	167,173	8,651	314,345	66,472	—637	20,385	45,450	44,677
Toledo, Peoria & Western	248	74,877	29,892	109,832	12,696	24,854	2,436	43,857	3,365	87,208	22,624	.....	5,000	17,624	3,288
Toledo, St. Louis & Western	451	241,912	22,337	283,437	25,546	60,875	8,335	117,256	7,954	219,966	63,471	.....	15,750	47,721	—1,754
Trinity & Brazos Valley	463	207,281	30,223	245,645	39,428	28,672	9,004	110,067	12,293	199,464	46,181	.....	3,500	42,681	51,539
Virginia & Southwestern	240[34]	124,962	10,879	139,240	15,712	30,120	1,802	42,464	3,174	93,272	45,968	.....	5,332	40,636	12,652
Wabash	2,515	1,444,602	397,512	2,031,013	198,205	436,253	75,096	1,045,473	70,506	1,825,533	205,480	—3,181	71,655	130,644	—156,987
Washington Southern	36	30,677	46,124	101,830	12,693	11,875	1,232	40,097	2,822	68,719	33,111	.....	3,245	29,866	440
Western Pacific	935	257,777	57,737	326,658	68,294	37,084	33,593	158,814	24,633	322,418	4,240	—4,727	18,249	—18,736	.....
Western Ry. of Alabama	133	72,786	38,643	120,441	18,112	22,172	5,649	39,468	5,829	91,230	29,211	100	4,612	24,699	—4,665
Wheeling & Lake Erie	457	511,320	38,663	577,138	52,472	112,593	7,056	208,296	14,166	394,583	182,555	701	32,237	151,019	54,825

[1] 355; [2] 4,434; [3] 236; [4] 631; [5] 2,232; [6] 9,091; [7] 341; [8] 471; [9] 246; [10] 1,979; [11] 1,173; [12] 2,542; [13] 317; [14] 611; [15] 7,274; [16] 350; [17] 113; [18] 1,737; [19] 1,348; [20] 1,990; [21] 376; [22] 296; [23] 1,022; [24] 191; [25] 240; [26] 501; [27] 797; [28] 1,105; [29] 3,046; [30] 6,187; [31] 57; [32] 34; [33] 444; [34] 242. —Indicates Deficits, Losses and Decreases.

Miles operated in previous period.

Anthracite Shipments.

The total quantity of anthracite coal shipped from the mines in the month of March was 6,596,687 tons, said to be the largest monthly movement on record. The shipments in February aggregated 5,875,968 tons. The shipments in March by the different roads were as follows:

	1912.	1911.	Changes.
Philadelphia & Reading	1,472,696	1,057,279	+415,427
Lehigh Valley	1,225,019	1,086,529	+138,490
Central R. R. of N. J.	848,110	768,031	+180,079
Delaware, Lack. & W.	916,824	738,499	+178,325
Delaware & Hudson	578,983	698,443	—119,460
Pennsylvania R. R.	537,470	586,016	— 48,546
Erie	761,742	811,357	— 49,615
Ontario & Western	228,843	250,740	— 21,897
Total	6,596,687	5,996,894	+572,793

New York Chamber of Commerce Calls for Conservatism in Railway Regulation.

The Chamber of Commerce of the State of New York, accepting the report of its committee on internal trade and improvements, has unanimously adopted the following resolution:

"Whereas, Traffic has increased so rapidly and railway facilities so slowly since 1907, that a small further enlargement of tonnage would produce a net car shortage and seriously handicap shippers; and

"Whereas, The Hadley Railroad Securities Commission, authorized by Congress, and composed of impartial experts of the highest standing, declares that 'the necessary development of railroad facilities is now endangered by the reluctance of investors to purchase new issues of railroad securities in the amounts required,' and the amounts issued since 1907 have been totally inadequate to supply the facilities needed; therefore, be it

"Resolved, That the Chamber of Commerce of the State of New York, in the interest of shippers and of the well being of the country as a whole, urges upon the Interstate Commerce Commission and all state railway commissions the importance, for the future, of so carefully weighing and considering the effect to be produced upon the railways in the making of any necessary readjustments of freight rates, that the same may be accomplished without further curtailing the total revenue of the railways, upon which their borrowing credit depends, bearing in mind, as stated by the Railroad Securities Commission, that 'a reasonable return is one which under honest accounting and responsible management, will attract the amount of investors' money needed for the development of our railroad facilities,' and also bearing in mind that the development and prosperity of the railroads mean development and prosperity of the country.

"Resolved, That copies of this resolution be sent to the Senators and Representatives in Congress from this state, to members of state railway commissions and to the members of the Interstate Commerce Commission, with the request that they give it careful consideration."

In presenting the report the chairman, Mr. Fairchild, said: "It has been estimated by competent statisticians that it will require in the next five years, to maintain railway facilities equal to the enormous traffic of the country, the immense sum of $8,500,000,000, of which three and a half billions would be for additions, increase in taxes and return on new securities, and five billions for the maintenance of the plant. This sum is eight times the national debt; it is more than two and a half times the amount of money in circulation; it is equal to all the deposits in the national and state banks, and nearly equal to the entire money value of all the farm products of the country in one year. It is over three times the annual gross revenue of the railroads, and it amounts to nearly one-half the existing railway capital represented by stocks and bonds. Are the eight and a half billions to be obtained out of the current earnings of the railways? That is manifestly impossible. Are they to be obtained by issue of new securities? If so, how are investors to be induced to put their savings into these new securities? Under the present demands for increased service, better equipment, new terminals, faster transportation, more expensive provision for insuring safety; the demand for higher compensation for labor, and the demand for cheaper rates of carriage for both passenger and freight, railway capital is forced to accept reduced returns upon its investments. . . . If this public pressure is continued, the credit of the railways and their ability to market their securities will be impaired, and the commerce of the nation crippled. So rapid has been the growth of this country that, in its great

business transactions, it expands 100 per cent. every ten years. Its rate of expansion may be retarded in a period of industrial depression, but not stopped. The annual tonnage of the railways is now vastly greater than the high point of 1907, and the growth in passenger traffic has been even more remarkable. . . . It is apparent that the time has arrived when the business interests of the country should rally to the support of the railways. Past abuses have been removed. Needed reforms have been instituted. The principle of government regulation has been established. The rule of justice, between individuals and communities and sections, is being more and more enforced. Labor has been more liberally remunerated and protected. Many improvements and economies in service have been introduced. One thing more is needful, namely, a larger recognition of the right of railway capital to an adequate reward."

INTERSTATE COMMERCE COMMISSION.

The commission has suspended until August 8 freight tariffs filed by F. A. Leland, naming increased rates on fresh meats and packinghouse products from Wichita, Kan., to points in Louisiana and elsewhere.

The commission suspended Docket No. 92 which involves the cancellation by the Chicago & Alton of through rates on coal with the Chicago, Burlington & Quincy, from mines on the line of the Chicago & Alton to Clinton, Ill., and Lyons, Iowa, and East Clinton. This results in an advance of 12½ cents per ton on pea, slack and screenings, and involves a charge of $3 per car switching on all coal from C. & A. mines to industries on the C., B. & Q. at Clinton, Iowa. There is no cancellation of through routes to Davenport, Iowa, and to other points, thus making an apparent discrimination against Clinton, Lyons and East Clinton.

No Discrimination Against Baltimore.

Merchants & Manufacturers Association of Baltimore, Md., v. Atlantic City Railroad et al. Opinion by Commissioner Meyer:

Complainant alleged that the defendants subject Baltimore to undue prejudice in certain passenger excursion fares from Baltimore to Atlantic City, and give unreasonable preference to New York in similar fares from New York to Atlantic City; also that the fares from Baltimore are unreasonable. The evidence indicates that the lower fares from New York are forced by competition and that the volume of the traffic from New York is about six times that from Baltimore. There is also a difference in mileage in favor of New York, though this is not controlling. It is held that the allegations of undue prejudice to Baltimore in these fares are not sustained, and that the excursion fares from Baltimore to Atlantic City are not shown to be unreasonable.

Conference Rulings.

If a railway and a water carrier separately publish and file their rates applicable to through shipments, traffic over such route may be lawfully transported under through bills of lading even though the rates are not joint through rates. A water carrier may not lawfully accept shipments for transportation on through bills of lading issued by a railway unless the water carrier has published and filed rates applicable thereto. Acceptance by a water carrier of through traffic on through bills of lading issued by a rail carrier is an evidence of an arrangement for continuous carriage which subjects the traffic to the provisions and jurisdiction of an act.

Under transit tariffs which require the payment of the full rate to final destination at the time the shipment is delivered at the transit point it sometimes occurs that the shipment is never forwarded to the destination to which charges have been paid. In such instances it is not unlawful or improper to refund the charges that have been paid in excess of what the lawful charges on the shipment would have been if the transit point had been its final destination. Subject to the time limit of ticket, the same rule applies where a passenger has purchased a ticket and has abandoned his journey at a point short of the destination shown on his ticket; and also to a prepaid shipment of freight that is stopped and delivered at a point short of that to which prepaid.

It is the view of the Commission that it is lawful for a railway which, by foreclosure or otherwise, has bought another railway, to give free transportation to the widow during widowhood, and minor children, during minority, of persons who died while in the service of the company formerly operating the road.

A shipment by water from one point to another in the territory of the United States is coastwise business; and shipments by water from a port of the United States to a port of any foreign country, even though adjacent, would be export business.

On inquiry as to whether or not, under conference ruling 327, carriers might send at their expense over shippers' names telegrams directing the routing of certain traffic, it is held that carriers may not pay for such telegrams.

Adjustment of Colorado Coal Rates.

Nebraska State Railway Commission v. Chicago, Burlington & Quincy et al. Opinion by Commissioner Meyer:

In the application of rates on coal from the Walsenburg district of Colorado to numerous points in Nebraska, defendants provide a rate of $3.50 per net ton to one group of stations and a rate of $3.75 to a second group. The complainant, in substance, asks that certain points now taking the $3.75 rate be included within the $3.50 rate group, and that certain points taking the $3.50 rate be divided into two new groups to which shall apply rates of $3 and $3.25, respectively. The rates involved have been considered in other cases, and upon further consideration it is held that the defendants subject Minden "K" to undue and unreasonable prejudice in charging a higher rate than applies at Minden, and that for the future the rate to Minden "K" should not exceed the rate contemporaneously maintained to Minden. Under the readjustment required by this finding, the rate to Minden "K" should not be exceeded at the intermediate stations of Keene, Wilcox, Ragan, Huntley, Alma, Orleans, Carter, and Sacramento.

Readjustment of Rates on Grain to Sioux City.

Sioux City Terminal Elevator Co. et al v. Chicago, Milwaukee & St. Paul et al. Opinion by Commissioner Clements:

Sioux City, Iowa, asks for lower local rates on inbound grain and the establishment of proportional rates on outbound grain to Chicago, Minneapolis and the Southeast. Such proportional rates are now given to Omaha, Neb., and Sioux City claims that it is discriminated against. Omaha pays a local rate in and proportional out to ultimate destination, the proportionals being lower than the outbound locals from Omaha to the same destination, whereas Sioux City has no proportional rates outbound but pays the joint rate to ultimate destination, with privilege of stopping grain at Sioux City for transit purposes. Proportional rates are asked for in addition to joint rates with transit privileges. Petitioner also claims the local rates to Sioux City from the grain States are unreasonable per se. The defendants claim that Sioux City is on an absolute parity with Omaha on South Dakota grain to the Southeast and say that there is a substantial difference in conditions on other grain at Sioux City and Omaha. The commission finds that the principal markets of Chicago and the Southeast are opened to the great bulk of the Sioux City grain on equality with Omaha. Omaha's natural advantage of location with respect to the Southeast cannot be controlled by any order of the commission. Conceding Sioux City's best development to be dependent on proportional rates, there remains the question of the justification for an order by the commission. It is established by this record and others before the commission that competition has played an all-important part in Omaha and Kansas City's proportional rates. Manifestly it is no part of the commission's duty or right to equalize markets except as that result may be incident to the correction of a substantial injustice in rates. The one substantial advantage to Omaha is the back haul privilege. The commission cannot, however, see that Omaha's advantage on this comparatively small tonnage subjects Sioux City to such general disadvantage as to warrant an order in disturbance of the whole western fabric of rates on grain, with substantial loss of revenue to the railways.

The local rates into Sioux City are found to be unreasonable in themselves and the commission expects an adjustment of these rates to be made. (23 I. C. C., 1.)

STATE COMMISSIONS.

The Chicago offices of the Illinois Railroad and Warehouse Commission will be removed this month from the Continental National Bank building to 718-724 Insurance Exchange building.

The Indiana commission has issued to the railways of the state a circular recommending that every company organize safety committees like those of the Chicago & North Western, the Baltimore & Ohio, and other roads. The commission believes that safety committees are no longer an experiment.

The railway commission of California has rendered a decision in the so-called San Joaquin Valley rate case, reducing the class rates of the Southern Pacific and the Atchison, Topeka & Santa Fe, between San Francisco, Los Angeles, Stockton, Fresno and Bakersfield and San Joaquin Valley points. It is estimated that the decision will cost the Southern Pacific about $500,000 a year and the Santa Fe between $200,000 and $300,000.

COURT NEWS.

The Supreme Court of the United States has assigned the inter-mountain rate cases for hearing October 15. These cases were argued last February, but the court says that, by reason of their importance, they should be heard by a full bench. There was a vacancy in the court in February.

Commerce Court Finds I. C. C. Without Jurisdiction in Switch Connection Case.

Baltimore & Ohio Southwestern and Norfolk & Western v. U. S. and Cincinnati & Columbus Traction, I. C. C. intervener. Opinion by Judge Archibald:

This is a petition to set aside an order of the I. C. C. compelling the B. & O. S. W. and the N. & W. to make a switch connection with the Cincinnati & Columbus Traction, and to secure through routes and joint rates. The provisions of the act with regard to compelling switch connections contain the following: "If any common carrier shall fail to install and operate any such switch or connection as aforesaid on application therefor in writing by any shipper *or owner of such lateral branch line of railway*, such shipper *or owner of such lateral branch line of railway* may make complaint to the commission. . . ." The words in italics were not in the act at the time the application for switches in question was made to the railways nor at the time of the complaint to the commission, but were put in as an amendment in 1910. At the time the proceedings were instituted the Traction company had no right to file the complaint, and the commission in consequence, except for the change in law, would have been without authority to entertain it. Immediately after I. C. C. v. D., L. & W. 216 U. S. 531, which held that in such a case a complaint could not be sustained, and after testimony had been taken before the I. C. C. but before a decision had been rendered, the case was reopened to permit two shippers along the line to be added as complainants. The commission's order was objected to on the ground that the admission of new complainants vitiates the whole proceeding; that the commission did not determine how the expense should be borne, and finally that it is in excess of its powers, or even of Congress itself, to order an interchange of cars along with through billing. These are serious objections which would have to be carefully considered except for the conclusion which we have reached on the underlying question as to weather the Traction company's road is a lateral branch line of railway within the meaning of the statute, which if found against that company is conclusive, since the law compels switch connections only with laterals.

The Cincinnati & Columbus Traction is intermediate between the B. & O. S. W. on the north, and the Norfolk & Western on the south, and substantially divides the diamond like section of territory lying in between them. In the total six miles east of Norwood the Traction company's line parallels and is contiguous to the right-of-way of the B. & O. S. W., and at Parinton it practically adjoins the right-of-way of the Norfolk & Western, which it similarly parallels for about four miles, and at Hillsboro again parallels the B. & O. S. W. for four or five miles. In considering whether the Cincinnati & Columbus Traction is a lateral branch railway, according to the test applied by the commission, it is held to be such as to places and shippers along its line in the intermediate territory between Dodsonville and Boston, remote from and not sufficiently served by the trunk lines it is a lateral railway but not as to those east or west of there. But it is obvious that this is not and cannot be the correct criterion. A road is or is not a lateral or branch railway according to the relation which it bears to the line with which a switch connection is asked, and this relation is one of road to road and not of shippers or territory. The Traction company's line is a competing line and is clearly not a lateral or branch line railway. The commission, therefore, was without jurisdiction to make the order and the temporary injunction, granted in the case, is made final.

Commerce Court Sustains the I. C. C. in N. & W. Grain Case.

Norfolk & Western et al. v. U. S., I. C. C., Corporation Commission of North Carolina. Opinion by Judge Hunt:

The original complaint was made by the Corporation Commission of North Carolina to the Interstate Commerce Commission, and after a hearing the commission ordered the Norfolk & Western to reduce its local class rates on traffic from Roanoke, Va., to Winston-Salem, N. C., and from Lynchburg, Va., to Durham, N. C. The reduction is indicated by a reduction in the first class rates from 61 cents per 100 lb. to 52 cents. The appeal is taken on the ground that the rates reduced were not in the issue before the commission and the order of the commission defeats its own purpose, and that the order compels the application of lower rates on certain traffic than the commission found to be reasonable, and that the commission erred in disregarding the interests of the railways other than the Norfolk & Western. It is easily gathered that the local rates were involved in the issue before the commission, and, considering the liberality of statements which is allowed in pleadings before the commission, the investigation into such local rates was authorized.

Petitioners urge that the commission in prescribing maximum through rates from Cincinnati to Winston-Salem and Durham, disregard the method of construction of a through rate on any article from a western city to Winston-Salem or Durham by adding a fixed proportional of the rate proper between the western city and the Virginia city to the local between the Virginia city and the North Carolina destination. Before the I. C. C. order the rates from Louisville to Winston-Salem and Durham were the same as from Cincinnati to these points. Granting that the order, which is only made specifically against the Norfolk & Western, affects rates on other roads running from other points than Cincinnati, there is no sufficient reason why this court should enjoin against this order. Of course, adjustments of rates often do affect adjacent territory. These matters were considered and expressly referred to by the commission in its report. Ordinarily rates not involved in the inquiry before the commission will adjust themselves to the conditions brought about by the order, but even though the assumption that they will adjust themselves is erroneous, and the basis for the assumption involves a mistaken factor as to such other rates, still it does not necessarily lead to the conclusion that the regulation of the rate directly involved in the order is invalid, or that the order fixing such a rate should be annulled by judicial authority, provided, always, the rate so directly involved and fixed is reasonable for shippers and carriers with relation to the particular destination concerned. It is not for us to say whether the commission has properly attached great or little weight to evidence adduced on a given point. If the particular matter in issue and inquired into was one of fact, and a full hearing was afforded, and the conclusion is supported by substantial evidence, it will not be nullified by the courts. Stress is laid on what is called a misconception of the relations of other carriers to the western business. Again we encounter what was a question of fact. The report of the commission refers to the pressure on the attention of the commission of the possibility of disaster to the interests of the intervening carriers. The rates ordered to be put in force by the Norfolk & Western being reasonable, we cannot say that because other roads have not met the reduced rates and are losing traffic as a consequence, the order of the commission should be interfered with.

Commerce Court Upholds Commission's Jurisdiction Over Movement of Freight Within a State.

Denver & Rio Grande v. I. C. C., U. S. intervening. Opinion by Presiding Judge Knapp:

The suit was brought to set aside an order of the I. C. C., which in effect reduced the rate on beer in carloads from Pueblo, Col., to Leadville, Col., when part of a through transportation from St. Louis, Mo., to Leadville. The principal ground on which the order of the commission is claimed to be invalid is that the order relates to the transportation of property received, handled, transported and delivered wholly within one state which is claimed to be not within the jurisdiction of the I. C. C. It is conceded that the transportation in question was interstate commerce. The shipments in question were hauled by the Missouri Pacific from St. Louis to Pueblo and turned over to the Denver & Rio Grande without break of bulk, which hauled them to Leadville. There was no joint rate of the two roads applying from St. Louis to Leadville and the through charge was the local rate of the M. P. from St. Louis to Pueblo, plus the local rate of the D. & R. G. from Pueblo to Leadville. The physical movement and handling of the car was precisely the same as would be the case under a joint rate and the through bill of lading.

It is claimed that the commission has no jurisdiction over the Pueblo-Leadville rate, because section 1 of the act says: "Provided, however, that the provisions of this act shall not apply to the transportation of passengers or property, or to the receiving, delivering, storage or handling of property wholly within one state and not shipped to or from a foreign country or to any state or territory aforesaid. . . ." The petitioner claims that the proviso in section 1 cannot be taken as aiming to exclude only strictly intrastate business, because of the excluding phrase in regard to traffic from foreign countries, because intrastate business destined to or coming from a foreign country is not excluded; and that therefore it follows that as there may be foreign business handled wholly in one state and not excluded, so there may be interstate business handled wholly in one state which is excluded. But it would follow that Congress, in devising a system of railway regulation, took care to include the intrastate carriage of foreign commerce, comparatively small in amount, and yet purposely exempted the intrastate carriage of interstate commerce, which aggregates a very large volume. It was interstate rail transportation that Congress primarily sought to regulate, not interstate water transportation, and not the rail part within a single state of rail and water interstate transportation unless the rail carrier and water carrier were under a common control arrangement. The proviso must be regarded as a disclaimer and not as an exception. This construction gives consistent and appropriate meaning to those provisions of the first section which define the scope and application of the entire exactment. The sixth section of the act gives the commission jurisdiction over separately established rates applied by a carrier on through traffic when there is a through route but no joint rate. This rate in question from Pueblo to Leadville seems to us clearly of the latter class. We do not say that a carrier located wholly within a state may not so conduct its business as to be in fact and in law a purely intrastate carrier. It is sufficient to decide this particular case. The petition should be dismissed.

The plan and survey of the Linares to Colbun railway, Chile, have been modified, and the Chillan to Las Termas railway, which was damaged by floods, has been almost entirely reconstructed. Work was recently begun on the Rucapequen to Tome and Penco railway, and the Pua to Curacutin railway has been constructed up to kilometer 24.

At the beginning of the present year rails had been laid on 235 of the 271 miles of the railway from Arica, Chile, to La Paz, Bolivia, railway, leaving 36 miles still to be laid. The principal tunnels have been bored, and the work of strengthening them is being rapidly carried on. The station at Arica will soon be completed, and the telegraph line is being extended ahead of the track-laying sections. Up to the first of the year this railway had cost $15,240,000. The rails of the two divisions were united March 2, 1912. Formal opening of this international line will take place during the summer.

Railway Officers.

ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

C. W. Hotchkiss, general manager of the Chicago, Indiana & Southern at Chicago, has been elected president of the Illinois Tunnel Company, with office at Chicago, effective May 1.

L. B. Jones, assistant auditor of the Atchison, Topeka & Santa Fe Coast Lines at Los Angeles, Cal., has been appointed auditor, with office at Los Angeles, succeeding W. J. Healy, deceased.

C. F. Parker, purchasing agent of the Illinois Central, and vice-president of the St. Louis, Belleville & Southern, with office at Chicago, has been elected also vice-president of the Central of Georgia.

W. R. Mozier, formerly auditor of freight accounts of the Chicago & Alton and the Toledo, St. Louis & Western at Chicago, has been appointed auditor of the Pacific & Idaho Northern, with office at New Meadows, Idaho.

Frank W. Blair, Dudley E. Waters and Newman Erb, having been appointed receivers of the Pere Marquette, William Cotter, president and general manager, has been appointed general manager; J. L. Cramer, vice-president and comptroller, has been appointed comptroller; and J. E. Howard, secretary and treasurer, has been appointed treasurer; all with office at Detroit, Mich.

A. H. Smith, whose election as vice-president of the New York Central Lines West of Buffalo, with office at New York, has been announced in these columns, was born 48 years ago, and has spent his entire railway service on the New York Central Lines, beginning in 1879 as a messenger boy on the Lake Shore & Michigan Southern at Cleveland, Ohio. He was later in the purchasing agent's office, and then went to the engineering department, and was for several years at work on a change of grade and reconstruction of the Lake Shore, west of Toledo, during which time he was foreman and then general foreman of construction work. In 1890 he was made superintendent of the Kalamazoo division, and was then consecutively superintendent of the Lansing, the Franklin and the Michigan divisions. In 1901 he was appointed assistant general superintendent of the Lake Shore & Michigan Southern, and was subsequently made general superintendent. He was transferred as general superintendent in 1902, to the New York Central & Hudson River. In 1903 he was promoted to general manager and in 1906 was elected vice-president and general manager of the same company. Mr. Smith remained in that position until his recent election as vice-president of the lines west of Buffalo, in charge of operation, maintenance and construction of all lines in the New York Central System, east and west of Buffalo, with the exception of the New York, Chicago & St. Louis, and the Pittsburgh & Lake Erie, west, and the Boston & Albany, and the Rutland roads east of Buffalo.

A. H. Smith.

Abraham Tracy Hardin, who has been appointed assistant vice-president of the New York Central Lines East of Buffalo, N. Y., with office at New York, was born in 1868 in South Carolina, and graduated from the University of South Carolina with the degree of civil engineer in 1894. Previous to graduation, he had been a telegraph operator in 1882, on the Richmond & Danville, and from 1882 to 1890 he was agent and stenographer on

the same road. He attended college from 1890 to 1894, and then for four years was in the maintenance of way department of the Southern Railway. From 1898 to September, 1899, he was supervisor and division engineer of the Eastern division of the New York Central & Hudson River. He was then promoted to engineer of track, and from February, 1903, to July, 1905, he was engineer of maintenance of way, and then for about one year was assistant to the general manager of the same road. In June, 1906, he was appointed assistant general manager, which position he held at the time of his recent appointment as assistant vice-president, as above noted.

Operating Officers.

M. Dailey has been appointed superintendent of the Missouri, Oklahoma & Gulf of Texas, with office at Denison, Tex., succeeding D. Sallee, resigned.

S. J. Jones has been appointed superintendent of transportation of the Alabama, Tennessee & Northern, and the Tombigbee Valley, with headquarters at Mobile, Ala.

A. B. Class has been appointed chief train despatcher of the Atchison, Topeka & Santa Fe, with headquarters at Newton, Kan., succeeding E. J. Cunningham, deceased.

L. Harold has been appointed assistant trainmaster of the Grand Trunk, with office at Hamilton, Ont., succeeding C. H. Brown, resigned to go to another company.

The general offices of the Oklahoma Central having been moved from Purcell, Okla., to Chickasha, W. G. Choate, general manager, has had his office transferred to the latter place.

M. J. Griffin has been appointed trainmaster of the Missouri, Kansas & Texas of Texas, with office at Hillsboro, Tex.; P. O. Penn, whose appointment to this position was recently announced in these columns, having died on the day of his appointment.

H. W. Henderson has resumed his duties as general manager of the Guayaquil & Quito Railway, with office at Huigra, Ecuador, succeeding M. K. Jones, granted leave of absence for three months, and A. R. Morris has been appointed superintendent of telegraph and telephone, succeeding G. R. Perry, resigned.

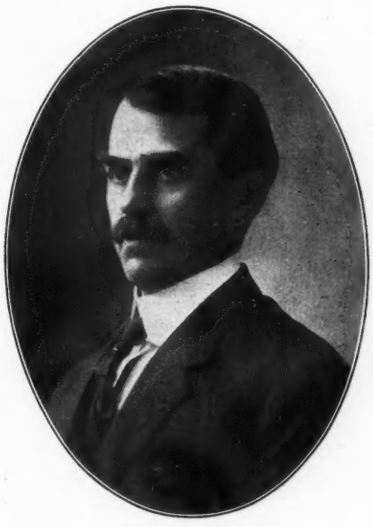
P. G. Cromar, assistant superintendent of the Lake Superior division of the Canadian Pacific at North Bay, Ont., has been transferred as assistant superintendent to Schreiber, and E. J. O'Brien, trainmaster at Schreiber, has been appointed assistant superintendent, with office at Chapleau, succeeding W. Bartlett, transferred.

J. H. Boyle, assistant superintendent of the Eastern division of the Canadian Pacific at Ottawa, Ont., has been appointed acting superintendent, with office at Ottawa, succeeding to the duties of H. B. Spencer, superintendent, granted leave of absence, and A. Williams, chief train despatcher at Woodstock, N. B., has been appointed assistant superintendent of the Lake Superior division, with office at North Bay, Ont.

P. L. McManus, inspector of transportation of the Chicago, Indianapolis & Louisville, having been appointed superintendent, with office at La Fayette, Ind., as has been announced in the *Railway Age Gazette,* his former position has been abolished. D. E. Murphy, who has been terminal trainmaster at South Hammond, Ind., and not W. J. Murphy, as stated in this column last week, has been appointed trainmaster of the Second division, succeeding C. T. McHugh, resigned. W. H. Gunzleman, chief despatcher, having resigned, W. H. Fogg has been appointed chief despatcher of the First division, and J. R. Stemm has been appointed chief despatcher of the Second division.

G. B. Vilas, who has been appointed assistant general superintendent of the Chicago & North Western, with office at Chicago, as has been announced in these columns, was born in April 1868, at Ogdensburg, N. Y. He attended Phillips Exeter Academy, Exeter, N. H., from 1885 to 1887, and began railway work in September of the latter year with the Chicago & North Western, and he has been with that road ever since. Until May, 1890, he did station work at Eagle Grove, Iowa, and Madison, Wis., and was agent at Kenosha, Wis. He was then for six years local freight agent at Milwaukee, and from September, 1896, to February, 1903, he was trainmaster at Milwaukee. In the latter month he was transferred to Baraboo, Wis., with the title of assistant superintendent, and was made superintendent in February, 1910, from which position he has just been promoted to assistant general superintendent at Chicago.

P. E. Crowley, whose appointment as general manager of the New York Central & Hudson River, with office at New York, has been announced in these columns, was born in August, 1864, at Cattaraugus, N. Y., and began railway work with the Erie as messenger boy in 1878. The following year he was promoted to telegraph operator, and was later station agent and then train despatcher on the same road. In 1890 he entered the service of the New York Central & Hudson River as train despatcher on the Rome, Watertown & Ogdensburg division, and was promoted to chief train despatcher in 1891. The same year he was made trainmaster, and in September, 1900, was appointed chief trainmaster of the Pennsylvania division. He was promoted to superintendent of the Pennsylvania division in August, 1901, and was made assistant general superintendent in December, 1904. Mr. Crowley was appointed general superintendent of the same company in June, 1905, and was promoted to assistant general manager in March, 1907, which position he held at the time of his recent appointment as general manager.



P. E. Crowley.

Traffic Officers.

H. W. Hawley has been appointed division freight agent of the Erie, with office at New York.

F. W. Hancock has been appointed traveling freight agent of the Southern Railway, with office at Philadelphia, Pa.

J. H. Harper, general agent of the Kansas City, Mexico & Orient, with office at St. Louis, Mo., has resigned to engage in other business.

O. A. Brown, division freight agent of the Atchison, Topeka & Santa Fe, with office at Wichita, Kan., has resigned to engage in other business.

C. F. Vigor, general agent in the traffic department of the Chicago & Alton and the Toledo, St. Louis & Western at Buffalo, N. Y., has had his title changed to commercial agent.

The general offices of the Oklahoma Central having been moved from Purcell, Okla., to Chickasha, B. M. Haile, traffic manager, has had his office transferred to the latter place.

C. M. Low, contracting freight and passenger agent of the Illinois Central at Denver, Colo., has been appointed traveling freight and passenger agent, with office at Denver, and A. O. Coke succeeds Mr. Low.

C. W. Carstens has been appointed traveling freight agent of the Kanawha Despatch, with headquarters at St. Louis, Mo., succeeding W. R. Miller, deceased. F. A. Miller has been appointed traveling freight agent, with office at Kansas City, Mo.

Augustin Miranda, assistant general freight and passenger agent of the Southern Pacific Railroad of Mexico, at Mexico City, Mex., has been appointed assistant general freight agent of the National Railways of Mexico, with office at Mexico City, succeeding F. L. Wemple, resigned to accept service with another company.

E. H. Smith, general agent of the Charleston & Western Carolina at Atlanta, Ga., has been transferred to Cincinnati, Ohio. W. H. Sedam has been appointed soliciting agent at Cincinnati, and J. G. Stanberry, soliciting agent at Atlanta, has been appointed commercial agent, with office at Atlanta, and his former position has been abolished.

Engineering and Rolling Stock Officers.

H. F. Howe has been appointed chief engineer of the Guayaquil & Quito Railway, with headquarters at Huigra, Ecuador.

W. O. Galbreath has been appointed engineer maintenance of way of the Missouri & North Arkansas, with office at Eureka Springs, Ark.

H. J. Anderson has been appointed roadmaster of the Chicago & North Western, with office at North Fond du Lac, Wis., succeeding J. H. Brown, resigned.

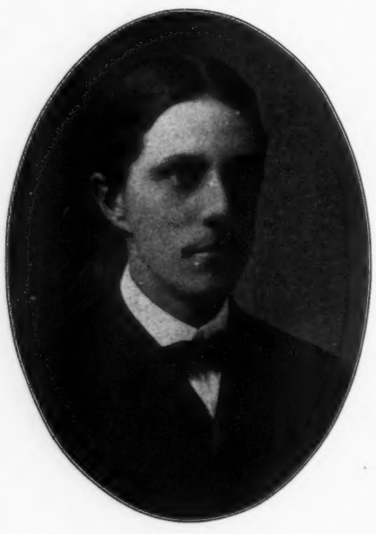
Pearl F. Smith, chief draftsman of the Chicago, St. Paul, Minneapolis & Omaha, at St. Paul, Minn., has been appointed mechanical engineer, with office at St. Paul.

T. M. Vickers, formerly master mechanic of the Missouri Pacific at Coffeyville, Kan., has been appointed master mechanic of the San Pedro, Lose Angeles & Salt Lake, with headquarters at Milford, Utah.

C. I. Knowles, assistant general foreman of water works of the Illinois Central, has been appointed general foreman of water works, with office at Chicago, succeeding C. E. Thomas, resigned to go with the Central Material & Construction Company at Mt. Pulaski, Ill.

J. C. Holden, assistant engineer of the Manitoba division of the Canadian Pacific at Winnipeg, Man., has been appointed division engineer of that division, with office at Winnipeg, succeeding F. Lee, promoted. C. H. Fox, resident engineer at Ft. William, Ont., succeeds Mr. Holden.

Henry Hatfield Decker, whose appointment as engineer of maintenance of the Chicago & North Western, with office at Chicago, has been announced in these columns, was born May 25, 1873, in New York City. He graduated with the degree of civil engineer from the Rensselaer Polytechnic Institute at Troy, N. Y., in June, 1897, and from that time until February 28, 1899, he was engaged in engineering work in Connecticut. He began railway work on the latter date as rodman on second track construction in Iowa on the Chicago & North Western; was subsequently instrument man, and in September, 1899, became assistant engineer on second track work. He was assistant engineer on construction, maintenance and location until May, 1907, and was then promoted to division engineer of the Minnesota and Dakota divisions, with headquarters at Winona, Minn. In May, 1909, he was appointed resident engineer of construction on lines in South Dakota, and returned to the position of division engineer at Winona in October, 1910, from which office he has just been promoted to engineer of maintenance of the lines east of the Missouri river.



H. H. Decker.

OBITUARY.

F. M. Welch, vice-president of the New Iberia & Northern, with office at New Iberia, La., died on April 6. Mr. Welch began railway work as a switchman, and was later brakeman and then conductor on various roads. He was then emigrant agent of the Texas & Pacific at New Orleans, La., and later built the railway of which he was vice-president at the time of his death.

E. C. Hawkins, chief engineer of the Copper River & Northwestern, with office at Seattle, Wash., died on April 9, at New York, following an operation. Mr. Hawkins was born in 1860 at Brook Haven, N. Y., and graduated from Rensselaer Polytechnic Institute, Troy. After graduation he was engaged in railway construction in Colorado, and in 1898 he was placed in charge of the construction of the first railway in Alaska. He built the White Pass & Yukon and the Copper River & Northwestern railways.

Bernard H. Bail, formerly vice-president and general traffic manager of the Philadelphia & Reading, at Philadelphia, Pa., died on April 7, at White Plains, N. Y. He was born on May 5, 1849, at Verona, N. Y., and began railway work in 1863 as a clerk on the New York Central. He entered the service of the Philadelphia & Reading in May, 1888, as assistant general freight agent, and since that time had been general freight agent and freight traffic manager. In December, 1909, he was elected vice-president and general traffic manager, but resigned immediately after on account of ill health.

C. D. Morris, assistant general freight agent of the Southern Railway at St. Louis, Mo., died on April 8. Mr. Morris was born on February 7, 1870, at Fairfield, Ill., and graduated from Hayward College, Fairfield, at the age of 17. He began railway work as a clerk on the Lake Erie & St. Louis, and the following year was promoted to contracting agent, which position he held until 1890. He then entered the general freight office of the same company at Louisville, Ky., as a clerk, and in 1897 was appointed assistant general freight agent. In January, 1901, when the Lake Erie & St. Louis was taken over by the Southern Railway, he was made chief clerk in the assistant general freight office, and in 1907 was appointed assistant general freight agent of the St. Louis-Louisville lines of the Southern Railway, which position he held at the time of his death.

J. E. W. Fields, formerly general freight and passenger agent of the Trinity & Brazos Valley at Cleburne, Tex., and subsequently with the Frisco lines at Houston, died on April 7. Mr. Fields was born on November 27, 1853, at Hayneville, Ala., and began railway work in 1881 as a track laborer on the Houston & Texas Central. He was later brakeman on the Missouri Pacific, and then, successively, check clerk, cashier and chief clerk on the Missouri, Kansas & Texas, at Waco. His next position was in the general freight office of the Texas Central, and in February, 1893, he was made general freight and passenger agent of the Waco & Northwestern. In August, 1897, he was made general freight and passenger agent of the Atlanta, Knoxville & Northern, and from January, 1899, to February, 1903, was traffic manager of the same road. He was out of railway service for a short time in 1903 until his appointment in September of that year as general freight and passenger agent of the Trinity & Brazos Valley. He left the service of this company in 1910 to go to the Frisco lines.

Amos Lawrence Hopkins, formerly and for many years a prominent officer of the Wabash and other roads in the "Gould system," died on April 4 at his home in Boston, Mass. Mr. Hopkins was born on April 10, 1844, in Williamstown, Mass., being the son of President Mark Hopkins of Williams College. He entered college with the class of 1863, but left at the outbreak of the war to become lieutenant in a Massachusetts regiment. He returned in time to graduate with his class and receive his degree. He was promoted repeatedly for bravery in action until the close of the war, when he had risen to the rank of major. He began railway work in 1867. He resigned as general superintendent of the Housatonic Railway in 1869 to become general superintendent of the Kansas City, St. Joseph & Council Bluffs, and from 1872 to 1873 he was vice-president of the Illinois Central. From 1874 to 1880 he was receiver of the Toledo, Peoria & Warsaw, and from 1876 to 1879 he was also vice-president and general manager of the Wabash Railroad. He was vice-president of the Wabash, St. Louis & Pacific from November, 1879, to February, 1889; and from April, 1883, to February, 1889, was also second vice-president of the Missouri Pacific and of the other companies composing the Gould system, which included the Missouri, Kansas & Texas, the Central Branch, Union Pacific, the Sedalia, Warsaw & Southern, the St. Louis, Iron Mountain & Southern, the Texas & Pacific, and the International & Great Northern. From May, 1895, to 1897 he was receiver of the Chicago & Northern Pacific, and from June, 1895, to July, 1898, was also president of the New York, Susquehanna & Western. He retired from active business life several years ago.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

The Union Pacific is making tentative inquiries for 25 switching locomotives.

The Wabash has ordered 10 mikado locomotives from the Baldwin Locomotive Works.

The Boston & Albany is said to be figuring on 19 locomotives. This item has not been confirmed.

The Georgia, Florida & Alabama has ordered 4 locomotives from the Central Locomotive Car Works.

The St. Louis & Hannibal has ordered one mogul locomotive from the Baldwin Locomotive Works.

The Atlantic Coast Line has ordered 1,200 tons of bridge material from the Pennsylvania Steel Company.

The Baltimore & Sparrows Point has ordered one six-wheel switching locomotive from the Baldwin Locomotive Works.

The Pennsylvania Equipment Company, Philadelphia, Pa., is in the market for two mogul locomotives and two heavy 10-wheel locomotives.

The St. Louis Terminal Railroad Association, St. Louis, Mo., has ordered 15 switching locomotives from the American Locomotive Company.

Hayden Machinery & Supply Company, New York, has ordered four 4-wheel switching locomotives from the Baldwin Locomotive Works.

The Ann Arbor has ordered three consolidation locomotives from the American Locomotive Company. These locomotives will be equipped with superheaters and will have 25 in. x 30 in. cylinders, 57 in. driving wheels, and in working order will weigh 231,000 lb.

The Green Bay & Western has ordered one mogul locomotive and one 6-wheel switching locomotive from the American Locomotive Company. The mogul locomotive will have 19 in. x 26 in. cylinders, 56 in. driving wheels, and in working order will weigh 136,000 lb. The switching locomotive will have 19 in. x 26 in. cylinders, 50 in. driving wheels, and in working order will weigh 126,000 lb.

The Kanawha & Michigan has ordered 10 consolidation locomotives and 2 eight-coupled, double-end locomotives from the American Locomotive Company. The consolidation locomotives will have 25 in. x 30 in. cylinders, 57 in. driving wheels, and in working order will weigh 138,000 lb. These locomotives will be equipped with superheaters. The eight-coupled, double-end locomotives will have 19 in. x 26 in. cylinders, 49 in. driving wheels, and in working order will weigh 229,000 lb.

CAR BUILDING.

The Boston & Maine is in the market for one scale car.

The Rutland is in the market for 500 forty-ton box cars.

The Grand Trunk is in the market for 36 sleeping cars and dining cars.

The Detroit & Mackinac has ordered 200 box cars from the American Car & Foundry Company.

The Georgia, Florida & Alabama has ordered 100 cars from the Central Locomotive & Car Works.

The New England Coal & Coke Company, Boston, Mass., is in the market for 500 fifty-ton coke cars.

The Wabash has ordered 12 combination passenger and baggage cars, eight chair cars, and four coaches.

The Aliquippa & Southern is in the market for sixty 100-ton gondola cars, and seventy-five 55-ton hopper cars.

The Cincinnati, New Orleans & Texas Pacific, is having 100 cars rebuilt as automobile cars by the Lenoir Car Company.

The Great Northern is said to have ordered 500 automobile cars from the Haskell & Barker Car Company. This item has not been confirmed.

The Harriman Lines are said to have prepared specifications for about 9,000 freight cars of various types. This item has not been confirmed.

The Algoma Central & Hudson Bay has ordered 70 Otis composite general service cars from the Hart-Otis Car Company. These cars will be built by the Canadian Car & Foundry Company.

O'Brien, Fowler & McDougall Brothers, Ottawa, Ont., have ordered 20 Hart convertible ballast cars from the Hart-Otis Car Company. These cars will be built by the Canadian Car & Foundry Company.

The Pennsylvania Equipment Company, Philadelphia, Pa., is in the market for one business car, two or three combination passenger and baggage cars, 10 coaches, five caboose cars, and from 15 to 20 steel dump cars, of from 40- to 50-tons capacity.

The Illinois Central has ordered 10 coaches, 10 compartment coaches and 20 combination coach and smoking cars, 26 baggage cars, ten 60-ft. and seven 70-ft. mail compartment cars, and 9 passenger and baggage cars from the American Car & Foundry Company, four cafe-coaches, one observation car, three parlor cars and 10 chair cars from the Pullman Company.

The Chicago, Milwaukee & Puget Sound, as mentioned in the *Railway Age Gazette* of March 15, has ordered 500 steel underframe automobile cars to be built at the Milwaukee shops of the Chicago, Milwaukee & St. Paul. These cars will have a capacity of 80,000 lbs. The inside measurements will be 50 ft. ⅛ in. long, 9 ft. wide and 10 ft. 6¾ in. high. The overall measurements will be 50 ft. 10 13/16 in. long, 10 ft. ¼ in. wide and 15 ft. 4⅞ in. high. Some of the special equipment will be as follows:

Bolsters—Bettendorf.	Couplers—Major.
Trucks—Bettendorf.	Doors—Security.
Brakes—Westinghouse.	Roofs—Hutchins.
Brakebeams—Ajax.	Wheels—Cast iron.
Brasses—Hewitt.	Draft Gear—Miner friction.

The Chicago, Milwaukee & St. Paul is in the market for 55 all-steel passenger cars, including coaches, cafe cars, cafe observation cars, sleeping cars and dining cars. This company, as mentioned in the *Railway Age Gazette* of March 1, has ordered 2,000 steel underframe box cars to be built at its Milwaukee shops. The specifications for the first 1,000 include a capacity of 80,000 lbs., and inside measurements, 41 ft. ½ in. long, 8 ft. 6⅜ in. wide and 8 ft. 8½ in. high. The overall measurements will be, 42 ft. 1⅝ in. long, 9 ft. 3⅝ in. wide, and 14 ft. 8 in. high. The specifications for the second 1,000 have not been decided upon. Some of the special equipment will be as follows:

Bolsters—Bettendorf.	Doors—Security.
Brakes—Westinghouse.	Draft Gear—Miner friction.
Brakebeams—Ajax.	Roofs—Chicago.
Brasses—Hewitt.	Trucks—Bettendorf.
Couplers—Major.	

IRON AND STEEL.

The Norfolk Southern has ordered 2,000 tons of mayori steel rails from the Maryland Steel Company.

The International & Great Northern has ordered 12,000 tons of rails from the Tennessee Coal, Iron & Railroad Company.

The Atlantic Coast Line has ordered 1,900 box cars from the Mount Vernon Car & Manufacturing Company, and 100 flat cars from the Standard Steel Car Company.

General Conditions in Steel.—There has been but little change in the steel industry during the past week. The Steel Corporation is operating at about 90 per cent. of its capacity and is booking new business at the rate of 30,000 tons a day. In March, the Steel Corporation established a new high record for production for one month. The Steel Corporation has on its books about 5,000,000 tons of business which was secured at the extreme low prices, so it is believed that it will be well into August before the corporation will really be able to benefit from the higher prices.

SIGNALING.

New Installations of Block Signals, Interlocking, Telephones for Train Despatching, Etc.

The Wabash plans to put up within the next three months 800 miles of telephone lines for use in train despatching.

The Chicago & Eastern Illinois, following a conference with the state railroad commission of Indiana, has decided to install automatic block signals from Atherton to Terre Haute, 10 miles, and from Terre Haute to Spring Hill, five miles.

Supply Trade News.

The Laconia Car Company, Boston, Mass., has moved its general offices from 141 Milk street to 60 Congress street.

R. L. Langtim has been appointed mechanical superintendent of the Western Railway Equipment Company, St. Louis, Mo., with office in that city.

The McKeen Motor Car Company, Omaha, Neb., has received an order from the Jamestown, Chautauqua & Lake Erie for one 55 ft., 200 h. p. gasolene motor car.

The Transue & Williams Company, Alliance, Ohio, manufacturer of drop forgings, has let contracts for a 400 ft. x 60 ft. building and a 275 ft. x 60 ft. building. These buildings will be of fireproof construction.

The Orenstein-Arthur Koppel Company, Pittsburgh, Pa., has completed the extension to its plant at Koppel, Pa., and is now, on a larger scale, making, selling and renting its steel underframe, contractors', square-box, 4-yd. dump cars.

Interests associated with the Nova Scotia Car Works, Halifax, N. S., have organized the Ontario & Western Car Company, Limited, with a capitalization of $5,000,000, and have announced the intention of erecting immediately a modern car-building plant at Port Arthur, Ont., to employ about 1,000 men.

The Ralston Steel Car Company, Columbus, Ohio, is making extensive improvements to its plant by enlarging the buildings and adding new machinery. When these improvements are completed the company will have a capacity of at least 40 cars a day. The improvements were started about March 15 and are expected to be completed about June 15.

The American General Engineering Company, New York, has enlarged its offices and established a railway department which will be operated jointly by George E. Austin, president of the company and John B. Given, in charge of sales. Mr. Given was for several years with C. H. Whall & Company, Boston, Mass., and will in the new department devote a considerable part of his time to the needs of steam railways which are in the early stages of electrification or to those roads contemplating electrification.

The design of the Strauss Bascule Bridge Company, Chicago, has been adopted by the Canadian Pacific for a 108-ft. 8-in. span over the Saskatchewan river near Medicine Hat, Alta., and by the Isthmian Canal Commission for a 106-ft. 2-in. span over the Gatun river at Colon, Panama, for the Panama Railroad. The Strauss company will on April 15 move its general offices from the Ft. Dearborn building to 608-614 Monroe building, 104 South Michigan avenue.

The Coppus Engineering & Equipment Company, Worcester, Mass., has been incorporated in Massachusetts to deal in and make machinery and mechanical appliances, particularly the Coppus turbo blower, a device for increasing the capacity of boilers and chimney drafts, invented by Frans H. C. Coppus, of Worcester. The officers of the company are as follows: President and treasurer, Frans H. C. Coppus; vice-president, Fritz W. Schmidt; directors, Linwood M. Erskine, Frans H. C. Coppus and Fritz W. Schmidt, all of Worcester.

Judge Sanborn, of the United States District court at Milwaukee, on April 6, appointed receivers for the Allis-Chalmers Company, Milwaukee, Wis., on the application of the First National and Wisconsin National banks of Milwaukee, both creditors of the company, and W. W. Nichols, of New York, a bond and stockholder. D. W. Call, president of the company, and Otto H. Falk, president of the Merchants' and Manufacturers' Association, were named as receivers. It is reported that the proceeding is intended to facilitate an early reorganization of the company.

There will be a meeting of the stockholders of the Westinghouse Air Brake Company, Pittsburgh, Pa., in Wilmerding, on April 24, to vote on the question of increasing the stock from $14,000,000 to $20,000,000. If this increase is made a dividend will be declared of 33⅓ per cent., payable in the stock of the company at par, out of the earned surplus of the company, which is now about $7,000,000. The rate of future cash dividends declared on the increased stock will probably be proportionately reduced. The purpose of the proposed increase is to make the amount of stock held by the company's shareholders more nearly represent the company's assets.

The National Tube Company, Pittsburgh, Pa., which recently sold $10,000,000 bonds, as mentioned in the *Railway Age Gazette* of March 29, will increase its capital stock from $9,000,000 to $13,000,000. This $4,000,000 stock will be bought at par by the Federal Steel Company, New York, which is a subsidiary of the United States Steel Corporation, and which now owns all the outstanding stock of the tube company. The proceeds of the sale of the bonds and stock will be used to reimburse the United States Steel Corporation and subsidiary companies of the corporation for money borrowed from them to pay for actual outlays, for additions and extensions to the tube company's plant, and for working capital. When this has been done the National Tube Company will have no floating debt.

The Greenfield Tap & Die Company, Greenfield, Mass., was organized in Boston on April 2 as a holding company. The capital of the company will consist of $1,000,000 preferred stock and $1,000,000 common stock. The company owns two-thirds of the stock of the Wiley & Russell Manufacturing Company, Greenfield, manufacturer of taps and dies, and a controlling interest in the Wells Brothers Company, Greenfield, also manufacturer of taps and dies, and expects soon to own the entire stock issue of the latter company. Charles P. Russell, president and treasurer of the Wiley & Russell company, will retire from active business. The officers of the Greenfield Tap & Die Company will be as follows: President, F. O. Wells, of Greenfield; vice-president, W. M. Pratt, of Greenfield; treasurer, F. H. Payne, of Boston; directors, F. O. Wells; W. M. Pratt; F. H. Payne; J. W. Stevens, of Greenfield; A. C. Dutton, of Springfield; J. H. Drury, of Athol; and W. J. Carlin, of Boston.

John Mather Wallis, assistant to the president of the Safety Car Heating & Lighting Company, New York, since 1909, died of heart disease at his home at East Orange, N. J., April 5. Mr. Wallis was born at New Orleans, La., December 10, 1853. After graduating from the Stevens Institute of Technology in 1876, he entered railway service in the Baltimore, Md., shops of the Northern Central. He was assistant road foreman of engines of the Northern Central and Baltimore & Potomac, November, 1879, to December, 1881; assistant engineer of tests of the Pennsylvania Railroad at Altoona, Pa., December 1, 1881, to June 1, 1882; superintendent of motive power of the Northern Central, June 1, 1882, to June 1, 1883; superintendent of motive power of the Philadelphia, Wilmington & Baltimore, June 1, 1883, to June 1, 1890; superintendent of motive power of the Pennsylvania Railroad division of the Pennsylvania Railroad, June 1, 1890, to October 26, 1896; general superintendent of the Philadelphia & Erie and the Northern Central, October 26, 1896, to January 1, 1899; general superintendent of the Pennsylvania Railroad division of the Pennsylvania Railroad, January 1, 1899, to 1903. In 1903 Mr. Wallis retired from railway service, and in 1909 he went to the Safety Car Heating & Lighting Company as assistant to the president.

The report of the Western Electric Company, Chicago, for the year ended December 31, 1911, shows that the gross sales were $66,211,975. The total income was $66,549,268; manufacturing costs, $62,414,067; and the net earnings, $4,135,201. Comparison of the year 1911 with the preceding year is difficult because the 1910 report included 13 months in order to make the fiscal year correspond with the calendar year. Taking twelve-thirteenths of the 1910 figures as a basis for comparison, which, of course, is inaccurate, the gross sales in 1911 increased $3,096,463 over the preceding year, the total income increased $2,984,460; the manufacturing costs increased $3,851,967, and the net earnings decreased $867,107. In 1911 $980,292 was carried to surplus, a decrease of $574,440 from the previous year. In 1911, nearly 22 per cent. was earned on the common stock. This is more than twice the regular 8 per cent. dividend, plus the usual extra 2 per cent. Gross sales in 1911 were the second largest in the history of the company, being only exceeded in 1906, when they were $69,000,000. The balance sheet shows that the accounts receivable are about $700,000 less than in 1910, which is more than offset by the decrease in accounts payable of about $1,280,000. The company charged off $800,000 to a reserve fund against depreciation of patents, etc.

TRADE PUBLICATIONS.

Tool Steel.—The Tool Steel Gear & Pinion Company, Cincinnati, Ohio, has issued a small illustrated booklet containing service records for gears and pinions in use on a number of electric railways.

Chicago, Burlington & Quincy.—The passenger department of this company has issued an illustrated folder giving fares and information concerning several tours to Colorado and the Yellowstone Park.

Car Roofing.—The Hutchins Car Roofing Company, Detroit, Mich., has issued a new illustrated catalog describing and illustrating both by detail drawings and photographs, its various types of outside metal roofs, inside all-metal roof, and plastic car roofing.

Electric Tools.—The Chicago Pneumatic Tool Company, Chicago, has issued bulletins E 19, E 20, E 21 and E 23, describing its Universal electric drill for direct or alternating current, a new line of electric drills for heavy duty, the Duntley electric track drill, and air-cooled direct current drills.

Building Materials.—The American Sheet & Tin Plate Company, Pittsburgh, Pa., has published a booklet entitled Better Buildings, giving information on the uses of formed metal roofing and siding materials. These products are fully described and illustrated and the methods of their application are outlined.

Thermostats.—The Railway Utility Company, Chicago, has issued an illustrated folder devoted to a description of the Utility electric thermostat for regulating the temperature of rooms, also an illustrated booklet on the regulation of temperature in railway cars, describing the method by which the thermostat is used for automatically maintaining a uniform temperature. The device is operated by the making and breaking of an electrical circuit through the expansion and contraction of a column of mercury.

Pneumatic Tools.—The Independent Pneumatic Tool Company, Chicago, has issued a new catalog, No. 9, 118 pages, relating to the Thor pneumatic tools, including air drills; reaming, tapping and wood boring machines; grinders, riveters and chipping, calking and beading hammers. It also includes pneumatic staybolt drivers, hoists, motors and tube expanders. All these are illustrated by excellent drawings of the complete tools and general views showing their application in building and repairing locomotives and cars. There are complete catalogs of repair parts which are each illustrated and numbered. The Corliss valve motion used in the drills and one-piece riveting hammers, and the valve mechanism in chipping and calking hammers are claimed to be the latest and most scientific improvements in air tools. Since the last catalog was published a number of improvements have been made in these tools, the most important of which is the adoption of roller bearings and a one-piece connecting rod in all drills. The tabular specifications for Thor air tools include, in addition to general dimensions, the weight, the amount of air in cubic feet per minute, speed and capacity.

The Cuban Central Railway proposes to construct a railway from Fernandez to Placetas, provided the government will grant a subvention of $19,200 per mile. The company estimates the construction and equipment of the railway at $48 per mile. The proposed railway would pass through Villa de Trinidad and would penetrate a rich agricultural and stock-raising country.

The proposed Northern Railway, Cuba, will run from Caibarien, via Mentas, to Moron, passing through a rich agricultural, stock-raising, and mining country. The construction company has petitioned the Cuban congress for a subvention of $9,600 per mile, and if this subvention is granted or a satisfactory arrangement with the interested parties effected, the work of building the railway will be commenced within a very short time.

Construction work on the Pacific Railway, Colombia, which starts at Buenaventura and has a length of 105 miles, has been completed to kilometer 140, and the working force at present employed upon the line, including laborers, engineers, experts, and other persons, numbers about 1,600 men. The rails are laid to within 19 miles of Cali, and the road is rapidly approaching that city. It is estimated that the entire line, which is being constructed with English capital, will be completed in 1913.

Railway Construction.

New Incorporations, Surveys, Etc.

Canadian Pacific.—Plans are now under way for the electrification of the section of this line known as the Rossland subdivision of the British Columbia division, between Castlegar Junction, B. C., and Rossland, 29 miles. J. G. Sullivan, chief engineer, Western lines, Winnipeg, Man.

According to press reports, this company will construct a large yard at East Kildona, adjoining Winnipeg, Man. The new yard is to be two and one-half miles long and one-half mile wide, and it is to have 100 miles of track. J. G. Sullivan, chief engineer, Winnipeg.

Cedar Rapids & Iowa City.—An officer writes that this company will let contracts in April to build an extension from the Cedar river at Cedar Rapids, Iowa, southeast via Bertram, to Mount Vernon, about 25 miles. The work involves handling about 20,000 cu. yds. a mile. There will be a steel bridge 75 ft. long, another 225 ft, long, and a third 300 ft. long. J. D. Wardle, chief engineer, Cedar Rapids.

Crossett, Monticello & Northern.—An officer writes regarding the reports that this company will build a line from Cremer Junction, Ark., via Fountain Hill, to Crossett, that the company was organized to operate about 43 miles, of which more than half will be in operation within the next 60 days. The plans also call for a number of extensions. A. Trieschmann, Crossett, may be addressed.

Durham & South Carolina.—An officer writes that the company expects to begin track laying in May on the extension from Bonsal, N. C., southast to Rawles, about 12½ miles, and expects to have the work finished this coming summer. R. A. Honeycutt, chief engineer, Durham. (December 1, p. 1148.)

Estacado & Gulf.—This company will be in the market soon for cross ties, bridges, and for 56 or 60-lb. rails to complete four miles of unfinished work into Roby, Tex. The company would also like to hear from a construction company that will take receiver's certificates, or bonds, for pay. Contracts for extensions are to be let in the near future. M. J. Healy, president, Roby.

Grand Trunk Pacific.—An officer is quoted as saying that about 6,000 men will be put to work this coming summer to complete the grading work started last year on the Prairie section, and that about 610 miles of track will be laid on the following lines: Regina south, 155 miles; Alberta coal branch, 20 miles; Regina-Moose Jaw, 100 miles; Tofield-Calgary, 90 miles; Prince Albert, 20 miles; Battleford, 50 miles; Cut Knife, 50 miles; Biggar-Calgary, 100 miles, and Brandon, 25 miles. On the western section 105 stations were built in 1911, and about the same number will be built during 1912. Charters for additional branch lines have recently been granted, and surveys will be made for these lines this spring. On the eastern section, which is being built by the National Transcontinental, there remains only 58 miles of grading to be carried out and 247 miles of track to be laid to complete the line from Superior Junction, Ont., now known as Graham, east to Cochrane, 524 miles. From Cochrane east to the Quebec boundary the main line has been graded and track has been laid on 72 miles. B. B. Kelliher, chief engineer, Winnipeg.

Gulf, Texas & Western.—An officer writes that the company is not planning to build an extension to Lubbock, Tex. Surveyors are now at work locating the line from Jacksboro, south to Mineral Wells, about 30 miles. J. J. Jermyn, president, Scranton, Pa.

Kettle Valley.—An officer writes that the company plans to build from Coldwater Junction, B. C., on the line south of Merritt, southwest to Hope on the Fraser river, about 50 miles. The route follows the Coldwater river to its source, thence to the Coquihalla river and along that river to Hope. The company expects to build about 12 miles this year, and to finish all the work in 1913. There is to be a bridge to cost about $750,000, over the Fraser river at Hope, which will be finished by about the time the line is completed to Hope. A. McCulloch, chief engineer, Penticton, B. C. (March 29, p. 780.)

Manitoba Northern.—A bill has been presented to the legislature of Manitoba, calling for the construction of a line from Winnipeg, Man., north through Kildona, St. Paul, St. Andrews, Gimli, Bifrost and Sturgeon Bay, to Grand Rapids, thence north and east to Hudson Bay, with branch lines to other points in the province. The company has a capital of $1,000,000, and the headquarters are at Winnipeg. C. W. N. Kennedy, C. Vokes, Winnipeg, A. C. Clare, Parkdale, and B. S. Benson, Selkirk, are incorporators.

Missouri, Oklahoma & Gulf.—An officer writes that contracts for all the work to be carried out on new lines have been let to the Fidelity Construction Company, Kansas City, Mo., of which J. W. Hoffman is president. This work includes the northern line from Wagoner, Okla., to Joplin, Mo., and to Pittsburg, Kan. The distance from Wagoner to Pittsburg is 127 miles. The Fidelity Construction Company has sublet about 70 per cent. of the grading work, and are letting contracts for the rest of the grading work. They are now at work on the removal of about 300,000 cu. yds. of heavy rock work, and will lay about 40 miles of track with their own forces from Wagoner to Spavinaw creek. McCabe & Steen has the contract for track laying, bridging and fencing for the rest of the line, also for a section of the line to Oklahoma City, which is not being carried out by the Fidelity Construction Company. The work is being started all along the line and track laying will be begun about June 1 at both Fairland and at Wagoner. It is expected that the line will be in operation by November, 1912. J. J. Harrison, chief engineer, Muskogee, Okla. (April 5, p. 824.)

See Wagoner, Okla., under Railway Structures.

Northern Pacific.—Announcement has been made that double tracking work and increased terminal facilities on lines in the state of Washington will be carried out during the next two years. The line between Seattle, Wash., and the Canadian boundary is to be straightened and the grades and curves reduced. Double tracking work is now being carried out in the Cascade mountains, and new storage yards are being constructed at Auburn, at Pasco, at Centralia, and at Spokane. W. L. Darling, chief engineer, St. Paul, Minn.

Port Huron & Northern.—An officer writes that this company plans to build during 1912 from Port Huron, Mich., north via Lakeport, Lexington, Croswell and other places to Sandusky, about 40 miles. There will be three steel bridges. The company will use gasolene motor cars for operating the line. William E. Bolles, treasurer, 502 Wayne Bank building, Detroit.

San Antonio & Northern.—Under this name a line is to be built, it is said, from Comfort, Tex., north to Brownwood, or Brady, on the Frisco, it will be between 100 and 125 miles long. It is understood that the Frisco interests are back of this project.

San Benito & Rio Grande Valley.—Announcement has been made that this company, which was organized to build from Santa Maria, Tex., west to Mission, 40 miles, is to be extended from Mission, up the valley of the Rio Grande to interior points of Zapata county, about 120 miles. Residents of Rio Grande have granted a bonus of $25,000. It is understood that the project is backed by the Frisco interests. Work is now under way on a line to Brownsville, following the valley of the Rio Grande to a point near the mouth of the river. S. A. Robertson, president, and C. E. Ensminger, chief engineer, San Benito.

Syracuse, Watertown & St. Lawrence River (Electric).—The New York Public Service Commission, Second district, has authorized this company to make a mortgage. The proceeds are to be used to build from a point near Cicero, Onondaga county, N. Y., on the Syracuse & South Bay Electric, north to Brewerton on the shore of Oneida lake, over six miles. The company was incorporated about a year ago with $1,250,000 capital. H. C. Beatty, president, H. D. Brewster, secretary, and W. W. Foster, treasurer, with headquarters at Syracuse.

Valley & Siletz.—This company, which was incorporated recently with $300,000 capital, to build from Falls City, Ore., south to Simpson, about 10 miles, has filed supplementary articles of incorporation in Oregon, to build from Independence, Ore., west to Newport, about 50 miles. The incorporators include F. S. Velcher, H. A. Packard and T. V. Littlefield. (February 9, p. 263.)

Wabash.—An officer writes that contracts have been left for grading embankment for second-track between Oakwood, Mich., and Milan, about 30 miles, also from New Haven, Ind., to Fort Wayne, about five miles, and from Taylorville, Ill., to Litchfield, about 33 miles. A. O. Cunningham, chief engineer, St. Louis.

RAILWAY STRUCTURES.

Harbor Island, Tex.—The Arkansas Harbor Terminal Railway has awarded the contract to J. T. Nelson, San Antonio, Tex., for the building of wharves, docks and warehouses, on Harbor Island, at an estimated cost of $200,000, to be connected with the mainland at Aransas Pass by a terminal railway about 6 miles in length.

Hope, B. C.—See Kettle Valley under Railway Construction.

Independence, Kan.—Work is to be started about July 1 on the construction of a new brick and tile passenger station for the Missouri Pacific to cost about $34,000.

Nashville, Tenn.—An officer of the Louisville & Nashville writes that a contract has been given to the Foster-Creighton-Gould Construction Company, Nashville, Tenn., to build the new bridge over the Cumberland river at Nashville.

New York.—The New York, Westchester & Boston, will ask for bids in about two weeks for putting up a new brick station and office building. The new structure is to be built on Morris Park avenue, between 180th and Adams streets, in the borough of the Bronx, and will cost $150,000.

Norfolk, Va.—According to press reports, the Norfolk Southern will build a new repair shop at West Munden, near South Norfolk. Land has been bought as a site for the new shop. It is expected that the work will be started this coming summer.

Norwood, Ohio.—The Norfolk & Western has awarded a contract for the construction of a freight station to cost about $15,000.

Pelham, Ga.—An officer of the Flint River & Northeastern writes that bids are wanted April 20, by J. L. Hand, president, Pelham, for putting up a brick and stone station to be two stories high, 48 ft. x 200 ft., at Pelham. The cost of the improvements will be $10,000.

Princeton, W. Va.—An officer of the Virginian Railway writes that a contract has been given to the George B. Swift Company, Chicago, for building an erecting shop at Princeton. The Roanoke Bridge Works has the contract for the steel work. The structure is to be 55 ft. high, 127 ft. 6 in. x 270 ft., and will be of steel and brick construction with gravel roof. The improvements will cost $80,000, not including one 20-ton and one 200-ton cranes, which have been orderd from the Niles-Bement-Pond Company. The same contractors have been given a contract to build an extension to the stripping shop, 70 ft. x 100 ft., to cost about $12,000, to be used as a boiler shop. This building is to be of steel and brick construction, and will be equipped with a 30-ton crane. An additional contract has been given to the George B. Swift Company, for the foundations for a transfer table, 75 ft. x 410 ft., to cost about $13,500, and to the Whitney Foundry & Equipment Company for the table.

Wagoner, Okla.—An officer of the Missouri, Oklahoma & Gulf, writes that contracts for bridge work have been given to Hancock & McMahan for the piers at the two crossings of the Grand river, also for those at Spring creek, at Saline creek, at Spavinaw creek, and at the Neosho river, and to the Missouri Valley Bridge Company for the piers over the Canadian river, also the erection of the steel work at the Canadian river, and for all the steel work at the Grand river; to the Fort Pitt Bridge Company for fabricating the truss spans for bridges over the Canadian river, the Neosho river, at Spavinaw creek, and at Spring creek; and to the Wisconsin Bridge Company for building the girders to be used for the two crossings of the Grand river and the smaller girders required for the rest of the work on the extensions being built in Oklahoma, Missouri and Kansas. (See Missouri, Oklahoma & Gulf under Railway Construction.)

The Borsig locomotive works, Berlin, Germany, had turned out 8,000 locomotives by last October. The number reached 7,000 in June, 1909, 6,000 in November, 1906, and 5,000 in May, 1902.

Railway Financial News.

Atlanta, Birmingham & Atlantic.—It is said that plans have been completed to renew for three years at 5 per cent. $6,239,200 collateral trust joint notes of the Atlantic & Birmingham Construction Company and the A. B. & A., when they come due May 1. It is understood that holders of over 90 per cent. of the notes have already agreed to the extension plan. Those noteholders who refuse to agree to the plan will have the collateral behind their notes sold at auction. The plan involves a change in the collateral back of the notes by the exchange of $5,000,000 par of Birmingham Coal Company stock for $4,000,000 stock of the Woodward Iron Company, a consolidation of the Birmingham Coal & Iron Company with the Woodward Coal & Iron Company. This $4,000,000 Woodward stock has been appraised at a figure nearly equaling the par value of the joint notes.

Birmingham & Northwestern.—A bill asking that a receiver be appointed for this company has been filed by J. W. Wright, Jr., a contractor, of Union Springs, Ala., who has been building the road. It is claimed that before the road was completed the construction company and the railway company ceased to furnish material.

Boston & Albany.—This company has petitioned the Massachusetts railway commission for authority to issue $1,000,000 4½ per cent. 25-year bonds to pay for additions and improvements made and to be made.

Canada Southern.—The stockholders of the Michigan Central, to which the Canada Southern is leased, will vote on May 2 on the question of authorizing the guaranty by the Michigan Central of the principal and interest of $40,000,000 50-year consolidated mortgage bonds of the Canada Southern, interest not to exceed 5 per cent. The present issue is to be $22,500,000 to refund $14,000,000 first mortgage 6 per cent. bonds due January 1, 1913; $6,000,000 second mortgage 5 per cent. bonds due March 1, 1913, and to cover the cost of improvements made and to be made to its property. Stockholders will also vote on the question of authorizing the Michigan Central to join in the Canada Southern mortgage to secure the consolidated bonds, so as to cover its leasehold in that property.

Central of Georgia.—A. G. Hackstaff has been elected a director of this company.

Central Pacific.—See Nevada & California.

Chicago, Milwaukee & St. Paul.—The directors have authorized a new issue of $35,000,000 4½ per cent. convertible debenture bonds, which will be offered to stockholders, both preferred and common, at par. These bonds will be convertible into common stock at par at any time between June 1, 1917, and June 1, 1922. The proceeds of this sale will be spent for improvements and equipment of the company's old line.

Copper River & Northwestern.—It is understood that this road has been offered for sale to the United States government at its cost price.

Detroit, Toledo & Ironton.—The sale of this property has again been postponed from April 9 to October.

East Pennsylvania Railroad.—The Philadelphia Stock Exchange has listed $178,600 additional stock, making the total amount listed $2,126,900. The new stock was issued to reimburse the Reading Company for expenditures on double-tracking and other improvements. This road runs from Reading, Pa., to Allentown, 35 miles.

Erie.—This company has sold to J. P. Morgan & Co., New York, $10,000,000 three-year 5 per cent. notes recently authorized. These notes are secured by deposits of $10,000,000 Erie convertible bonds, $1,000,000 general lien bonds, $3,000,000 Erie & Jersey first mortgage 4 per cent. bonds and $2,000,000 Genesee River first mortgage 4 per cent. bonds. The proceeds of the notes will be used to double-track, reduce grade and realign portions of the track on the Western division.

Michigan Central.—See Canada Southern.

Missouri & North Arkansas.—Application will be made for authority to issue receiver's certificates to finance needed improvements and equipments which, it is said, will require $2,000,000.

Nevada & California.—The property of this company, whose entire capital stock has heretofore been owned by the Southern Pacific, was on February 29 deeded to the Central Pacific. The road was mortgaged last year to secure an authorized issue of $15,000,000 first mortgage 6 per cent. bonds of November 1, 1911-1941. The $8,500,000 outstanding bonds, representing advances by the Southern Pacific, have been assumed by the Central Pacific and turned over by that company, along with $1,060,052 cash, the remainder of the purchase price of the property, to the Southern Pacific. The Nevada & California runs from Hazen, Nev., to Mojave, Cal., about 480 miles.

New York Central & Hudson River.—The Public Service Commission, Second district, has granted the application of this company to purchase the stock of the Rome, Watertown & Ogdensburg at $128 a share. The outstanding capital stock of the R. W. & O. is $10,000,000. The commission has also granted the application of the New York Central & Hudson River to buy 11,030 shares of the stock of the Utica & Black River at $180 a share. The total amount of stock outstanding of the Utica & Black River is 22,230 shares, of which the N. Y. C. & H. R. owns all but 11,030 shares. (See *Railway Age Gazette* of March 15.) The N. Y. C. & H. R. is also authorized to issue $16,429,000 4 per cent. 30-year debenture bonds to complete the purchase. These bonds will be offered to the holders of the above mentioned stock at 92 and interest.

Ohio River & Western.—See Pennsylvania Railroad.

Oklahoma Central.—Federal Judge Campbell, at Muskogee, Okla., has ordered this road to be sold to satisfy a mortgage of $10,000,000 on the petition of the Western Trust & Savings Bank of Chicago. This road has been in the hands of a receiver since June, 1908. The road runs from Lehigh, Okla., to Chickasha, 128 miles.

Pennsylvania Railroad.—The purchase of the Ohio River & Western by this company for $3,000,000, which was mentioned in the *Railway Age Gazette* of April 5, will give the Pennsylvania Railroad the rights of 25,000 acres of Pittsburgh No. 8 coal lands. The Ohio River & Western runs from Zanesville, Ohio, to Bellaire, 112 miles.

Pere Marquette.—The Michigan railway commission last week again denied the application of this company for authority to issue $4,000,000 bonds. On April 5 an order was obtained from Judge Angell, in the United States district court, Detroit, Mich., placing the property in the hands of Frank W. Blair, of Detroit; Dudley E. Waters, of Grand Rapids, and Newman Erb, of New York, as receivers. The action was taken on a petition filed by the American Brake Shoe & Foundry Company, Mahwah, N. J., on the claim of $7,164.

Protective committees have been formed by the holders of Pere Marquette 6 per cent. debenture bonds due July 1, 1912; the 4 per cent. refunding bonds due 1955, and the first and second preferred stocks. The Guaranty Trust Company of New York, and the Old Colony Trust Company of Boston, are the depositories for the debenture bonds, and the Bankers Trust Company of New York, and the Old Colony Trust Company for the refunding bonds. The debenture bondholders committee consists of Alexander J. Hemphill, chairman; C. W. Cox, F. R. Hart, E. V. R. Thayer and A. H. Wiggin. The refunding bondholders committee consists of Benjamin Strong, Jr., chairman; Franklin Q. Brown, Francis R. Hart, E. V. R. Thayer, James N. Wallace and Frederick Strauss. The stockholders committee consists of Philip Stockton, chairman; C. W. Cox, John M. Graham, Guy Norman, W. J. Wollman and F. W. Denio.

Southern Pacific.—See Nevada & California.

Wabash-Pittsburgh Terminal.—F. H. Skelding, co-receiver with Henry W. McMaster of this company and the West Side Belt Railroad, has tendered his resignation to the United States district court on the ground of ill health.

ANNUAL REPORT

THE DELAWARE AND HUDSON COMPANY.

GENERAL OFFICE.

NEW YORK, N. Y., March 27, 1912.

To the Stockholders of
The Delaware and Hudson Company:

The President and the Board of Managers submit the following statements of the affairs of the Company for the year ended December 31, 1911:

The results from operation of the Coal Mining Department were:

Year.	Coal Mined.	†Revenues.	‡Expenses.	Net Revenue.
1911	7,280,939 tons.	$13,355,014.38	$13,238,304.12	$116,710.26
1910	6,647,659 "	11,806,887.89	11,448,226.16	358,661.73
Increase	633,280 tons.	$1,548,126.49	$1,790,077.96	*$241,951.47

†Excluding dividends received from stock of Coal Companies owned.
‡Excluding taxes.
*Decrease.

The results from operation of the Railroad Department were:

Year.	Miles Operated.	Operating Revenues.	*Operating Expenses.	Net Operating Revenues.	Percentage of Expenses to Revenues.
1911	877.60	$21,421,816.83	$12,758,159.48	$8,663,657.35	59.56
1910	843.46	20,431,800.43	12,198,287.13	8,233,513.30	59.70
Increase.	34.14	$990,016.40	$559,872.35	$430,144.05	†.14

*Excluding taxes.
†Decrease.

FINANCIAL.

CAPITAL STOCK AND FUNDED DEBT.

Additional Capital Stock of The Delaware and Hudson Company to the amount of $1,000 was issued during the year in exchange for $1,000 of

RAILROAD DEPARTMENT.

REVENUES AND EXPENSES.

The general distribution of the Operating Revenues and of the Operating Expenses of the Railroad Department was as follows:

	1911.	1910.	Increase.	Decrease.
REVENUES:				
From Coal Freight Traffic	$9,847,193.63	$8,724,580.82	$1,122,612.81	
" Merchandise Freight Traffic (including switching)	8,027,412.72	8,052,704.99	.....	$25,292.27
" Passenger Traffic	2,967,128.84	2,910,025.98	57,102.86	
" Express Traffic	235,338.64	209,210.11	26,128.53	
" Transportation of Mails	119,349.88	119,378.67	.....	28.79
" Miscellaneous Sources	225,393.12	415,899.86	.....	190,506.74
Total Operating Revenues	$21,421,816.83	$20,431,800.43	$990,016.40	
EXPENSES:				
For Maintenance of Way and Structures	$1,488,756.81	$1,557,912.63	.....	$69,155.82
" Maintenance of Equipment	3,060,739.03	2,842,069.20	$218,669.83	
" Traffic Expenses	250,285.23	249,932.55	352.68	
" Transportation Expenses	7,414,071.40	7,066,049.09	348,022.31	
" General Expenses	544,307.01	482,323.66	61,983.35	
Total Expenses	$12,758,159.48	$12,198,287.13	$559,872.35	
Net Revenue from Operation	$8,663,657.35	$8,233,513.30	$430,144.05	
Percentage of Expenses to Revenues	59.56	59.70	.....	.14

GENERAL INCOME ACCOUNT OF THE DELAWARE AND HUDSON COMPANY, YEAR ENDED DECEMBER 31, 1911, IN COMPARISON WITH YEAR ENDED DECEMBER 31, 1910.

	1911.		1910.		Increase.	Decrease.
COAL MINING DEPARTMENT:						
Gross Revenues	$13,355,014.38	.....	$11,806,887.89	.....	$1,548,126.49	
Gross Expenses	13,238,304.12	.....	11,448,226.16	.....	1,790,077.96	
Net Revenues	$116,710.26	.....	$358,661.73	.....	.....	$241,951.47
Taxes Accrued	141,011.00	.....	316,739.00	.....	.....	175,728.00
Operating Income	Loss $24,300.74	.....	$41,922.73	.....	.....	66,223.47
OTHER INCOME:						
Dividends and Interest	308,519.84	.....	443,828.27	.....	.....	135,308.43
Gross Income Coal Department	.....	$284,219.10	.....	$485,751.00	.....	201,531.90
RAILROAD DEPARTMENT:						
Gross Operating Revenues	$21,421,816.83	.....	$20,431,800.43	.....	990,016.40	
Gross Operating Expenses	12,758,159.48	.....	12,198,287.13	.....	559,872.35	
Net Operating Revenues	$8,663,657.35	.....	$8,233,513.30	.....	430,144.05	
Taxes Accrued	562,409.66	.....	497,408.19	.....	65,001.47	
Operating Income	$8,101,247.69	.....	$7,736,105.11	.....	365,142.58	
OTHER INCOME:						
Hire of Equipment	$150,503.27	.....	$196,168.29	.....	.....	45,665.02
Outside Operations	Loss 12,435.79	.....	Gain 1,163.08	.....	.....	13,598.87
Dividends and Interest	1,167,020.41	.....	1,274,018.61	.....	.....	106,998.20
Miscellaneous Items	69,908.94	.....	79,455.76	.....	.....	9,546.82
Total Other Income	$1,374,996.83	.....	$1,550,805.74	.....	.....	175,808.91
Gross Income Railroad Department	.....	9,476,244.52	.....	9,286,910.85	189,333.67	
DEDUCTIONS FROM INCOME:						
Rentals	$2,022,925.80	.....	$2,045,083.70	.....	.....	22,157.90
Interest on 1st and Refunding Mortgage Bonds (1943)	1,087,159.98	.....	828,160.00	.....	258,999.98	
Interest on 1st Mtge. Bonds (1917)	350,000.00	.....	350,000.00			
Interest on Debenture Bonds (1916)	558,926.22	.....	559,001.11	.....	.....	74.89
Interest on 1st Lien Equipment Bonds (1922)	436,454.88	.....	443,621.25	.....	.....	7,166.37
Interest on Debenture Bonds (1914)	20,000.00	.....	28,000.00	.....	.....	8,000.00
Interest on Divisional Bonds	75,000.00	.....	75,000.00			
General Interest and Discount	35,199.70	.....	191,672.42	.....	.....	156,472.72
Total Deductions	.....	4,585,666.58	.....	4,520,538.48	65,128.10	
Net Income Railroad Department	.....	$4,890,577.94	.....	$4,766,372.37	124,205.57	
GENERAL:						
Miscellaneous Income:						
Dividends and Interest on Securities Owned	$11,296.00	.....	$56.00	.....	11,240.00	
Rentals, Real Estate	21,069.98	.....	31,454.05	.....	.....	10,384.07
General Interest and Discount	39,280.44	.....	46,555.62	.....	.....	7,275.18
Total Income	$71,646.42	.....	$78,065.67	.....	.....	6,419.25
Taxes Accrued	8,762.59	.....	.....	.....	8,762.59	
Net Income General	.....	62,883.83	.....	78,065.67	.....	15,181.84
Net Income Carried to General Profit and Loss	.....	$5,237,680.87	.....	$5,330,189.04	.....	92,508.17
Percentage to Capital Stock	.....	12.32% on $42,503,000.00	.....	12.54% on $42,502,000.00		

The Delaware and Hudson Company's Debenture Bonds of 1916, and for $1,000 of the Albany and Susquehanna Railroad Company's First Mortgage Three and One-Half Per Cent. Bonds of 1946.

The amount of Debentures of 1916 shows a reduction of $1,000, one bond having been exchanged for Capital Stock of The Delaware and Hudson Company.

The outstanding Debentures of 1914 were reduced $200,000, the bonds maturing January 1, 1911, having been paid off and cancelled.

The amount of First Lien Equipment Bonds of 1922, outstanding December 31, 1911, was $9,698,000, bonds aggregating $9,000 having been retired during the year through the operation of the Sinking Fund established in connection with their issue.

The 1910 annual report stated the purposes for which the Company contemplated an issue of $7,000,000 additional First and Refunding Mortgage Gold Bonds of the Company. The Company realized from the sale thereof $6,825,000; and the discount of $175,000 was charged to the General Profit and Loss Account.

Floating Debt.

The Floating Debt of the Company decreased $3,594,320 during the year.

Sinking Funds.

During the year there was paid into the Sinking Fund under the First and Refunding Mortgage the sum of $277,040, being one per cent. of the par value of the First and Refunding Mortgage Gold Bonds outstanding May 1, 1911, making the total paid to date, $619,470. In accordance with the terms of the trust agreement, this money has been expended in additions and betterments to the property coming under the mortgage.

A Summary of the operations of the Sinking Fund under the First Lien Equipment Trust Indenture, from the date of its creation to December 31, 1911, follows:

RECEIPTS:		
Annual payments to Trustees, years 1908, 1909, 1910 and 1911, $650,000 per year	$2,600,000.00	
Interest on cash balances and investments	58,187.74	
Total		$2,658,187.74
DISBURSEMENTS:		
Forty-seven (47) locomotives acquired	$1,153,985.05	
Three hundred and two (302) D. & H. Co. First Lien Equipment Bonds purchased and retired (including accrued interest)	308,067.38	
Securities and Cash in hands of Trustees	1,196,135.31	
Total		$2,658,187.74

In accordance with ordinance passed May 9, 1899, and amended at annual meeting of stockholders held on May 10, 1910, there was accumulated in the Coal Department Sinking Fund $321,536.21. Of this amount $260,000.00 were appropriated towards the cost of coal lands purchased in the Wyoming Section, and the balance was applied to the advances to The Schuylkill Coal & Iron Co. and the Shanferoke Coal Co. for the acquisition of anthracite coal lands in Schuylkill County, Pa.

Dividends.

On December 27, 1911, a dividend for the year 1912, upon the outstanding $42,503,000 of Capital Stock of the Company, at the rate of nine (9) per cent. upon the par value thereof, and amounting in the aggregate to $3,825,270, was declared out of the earnings for the current and preceding years payable as follows:

Two and one-quarter (2¼) per cent. upon the Capital Stock, in favor only of the stockholders of record upon February 26, 1912, and payable upon March 20, 1912.

Two and one-quarter (2¼) per cent. upon the Capital Stock, in favor only of the stockholders of record upon May 28, 1912, and payable upon June 20, 1912.

Two and one-quarter (2¼) per cent. upon the Capital Stock, in favor only of the stockholders of record upon August 28, 1912, and payable upon September 20, 1912.

Two and one-quarter (2¼) per cent. upon the Capital Stock, in favor only of the stockholders of record upon November 27, 1912, and payable upon December 20, 1912.

GENERAL REMARKS.

Coal Department Operations.

There were mined 7,280,939 tons of anthracite coal out of a total of 69,954,299 tons produced in the region, including product of washeries.

Increase in the mining of this Company was 633,280 tons and the increase in production of the entire region was 5,048,513 tons.

During the year, construction was commenced on a new colliery at Archbald, Pa., at an estimated cost of $300,000, and having a capacity of 1,500 to 1,800 tons daily. This will open up new coal lands, and by abandoning the present White Oak Colliery, having a capacity of 675 tons, and passing the coal through the new colliery, more economical operation will be secured.

At Legitt's Creek Colliery three large air compressors were added to the compressor plant which supplies power for the compressed air locomotives in the mines of the Legitt's Creek, Marvine, Dickson and Von Storch operations; the haulage underground being mainly by the use of air locomotives. Twelve additional air locomotives were also placed in the Legitt's Creek Mine.

Many wooden barns in the mines have been replaced by concrete barns, and considerable progress has been made in the installation of protective apparatus for fires, to safeguard the Company's property and the lives of its employes.

During the year the pumping, transportation and ventilating facilities were increased to correspond with the requirements of the mine workings; and development work continued, in order to maintain the output.

The Coal Department Expenses include Construction and Betterments amounting to $823,654.71, as against $766,673.73 in 1910, as follows:

New Engines, New Boilers, Boiler Houses and Fittings	$222,175.54
Sinking Shafts and Shaft Improvements	110,384.32
Rope Haulage, Slopes, Planes and Ropes	111,864.59
Electric Plants and Machinery	37,104.70
New Pumps and New Pump Rooms	82,243.65
Tracks, Locomotives and Compressors	40,279.99
Improvements to Breakers and Washeries	14,401.75
Tunnels and New Openings	87,868.95
Conveyors	14,832.00
Other New Buildings	2,818.56
Concrete Barns, etc	65,672.49
Miscellaneous	34,008.17
Total	$823,654.71

Railroad Department Operations.

The total increase in Revenue from operation was $990,016.40.

The Revenue from Coal Freight traffic increased $1,122,612.81, the Revenue from Merchandise traffic decreased $25,292.27, the Revenue from Passenger traffic increased $57,102.86 and the Revenue from miscellaneous traffic decreased $164,407.00.

The total increase in Operating Expenses was $559,872.35. Maintenance of Way and Structures Expenses decreased $69,155.82; Maintenance of Equipment Expenses increased $218,669.83; Traffic Expenses increased $352.68; Transportation Expenses increased $348,022.31, and General Expenses increased $61,983.35.

The ratio of Operating Expenses to Operating Revenues shows a decrease of 4/100ths per cent. under 1910.

There were received during the year the four Mallet Articulated Compound Locomotives, the six Ten-Wheel Locomotives and the one Consolidation Pusher Locomotive which were ordered in 1910, paid for from the funds accumulated under the First Lien and Equipment Trust Indenture.

During the year 1911 a contract was entered into with the American Locomotive Company for the acquisition of three new Mallet Articulated Compound Locomotives and twelve Class E-5 Consolidation Locomotives for delivery in March and April, 1912. Arrangements were also made for the acquisition of five new Standard Steel underframe milk cars, fifteen four (4) wheel caboose cars, and one passenger and baggage gas-electric car. All of this additional equipment will be paid for from the funds accumulated under the First Lien Equipment Trust Indenture.

There is now under way the work of equipping with steed underframes 900 coal cars of 60,000 lbs. capacity, 900 coal cars of 80,000 lbs. capacity and 600 box cars of 60,000 lbs. capacity, at a total estimated cost of $1,088,000. When completed approximately 70 per cent. of the revenue freight car equipment of the Company will be equipped with steel underframes.

The purchase of the Salem Branch, from Greenwich to Salem Junction, N. Y., a distance of 10.20 miles, was completed on May 17, 1911. Work has progressed rapidly on the new shops and terminals at Watervliet, N. Y., the coal storage and transfer facilities at Glenville, N. Y., the new round house and terminal facilities at Carbondale, Pa., and other items referred to in the Annual Report for the year 1910, and which will be paid for from the proceeds of the $7,000,000 First and Refunding Mortgage Bonds. At the close of the year there remained with the Trustee an unexpended balance of $596,678.43, all of which will be expended during the year 1912.

Work is in progress on the construction of a mile of double track north, from the end of Binghamton yard. This work will be completed early in 1912 at a cost of about $30,000 and will avoid delays heretofore experienced in the movement of freight trains in and out of the yard.

In order to properly take care of the heavier power in use on the Susquehanna Division, there has been constructed a new 10-stall engine house together with complete equipment of ash-pits, coaling plant and water supply system at Binghamton, N. Y. This work cost about $75,000.

In order to permit one locomotive to haul between Nineveh and Oneonta, the same tonnage that is handled over the heavy grades out of Carbondale and Binghamton with the aid of a pusher, the grades between Nineveh and Oneonta, a distance of 37 miles, have been reduced from 36 feet per mile to 15.8 feet per mile. This will permit of an increase of 250 tons in the tonnage hauled by one locomotive. The work is practically completed, and the total cost will be about $160,000.

The total expenditures during the year on Account of Additions and Betterments to the Company's Railroad (and including expenditures on account of the items mentioned above) amounted to $2,681,387.55, details of which are as follows:

ROAD:		
Right of Way and Station Grounds	$115,476.41	
Widening Cuts and Fills	296.82	
Protection of Banks and Drainage	211.31	
Grade Reductions and Changes of Line	292.67	
Bridges, Trestles and Culverts	12,172.48	
Increased Weight of Rail	45,827.77	
Improved Frogs and Switches	134.83	
Track Fastenings and Appurtenances	11,158.43	
Additional Main Tracks	13,848.79	
Sidings and Spur Tracks	143,168.16	
Terminal Yards	1,894.78	
Fencing Right of Way	1,317.33	
Elimination of Grade Crossings	54,831.42	
Interlocking Apparatus	9,748.26	
Block and Other Signal Apparatus	15,303.97	
Telegraph and Telephone Lines	2,728.81	
Station Buildings and Fixtures	63,069.50	
Roadway Machinery and Tools	37,582.59	
Shops, Engine Houses and Turntables	622,917.72	
Shop Machinery and Tools	107,138.94	
Water and Fuel Stations	28,997.45	
Other Additions and Betterments	3,416.08	
Work in Progress	1,074,518.02	
Total for Year		$2,366,052.54
EQUIPMENT:		
Steam Locomotives	$248,802.52	
Passenger Train Cars	27,205.19	
Freight Train Cars	(Cr.)73,755.29	
Work Equipment	(Cr.)22,680.62	
Work in Progress	135,763.21	
Total for Year		315,335.01
Grand Total 1911		$2,681,387.55

The Safety Appliance Act, passed by Congress in the year 1911, requires the installation of side ladders on cars that now have only end ladders and the installation of end ladders on cars that now have only side ladders, the replacement of old appliances with new appliances of approved design, such as putting on new brake wheels to take the place of those now in service that are not of the required diameter, and the replacement of welded brake staffs with those made of a solid piece with upset ends, and the re-arrangement and relocation of existing devices, such as couplers and grab irons. This work will involve an expenditure on behalf of this Company of approximately $315,000, which will be begun in 1912 and extend over a period of about five years.

The form of General Balance Sheet as promulgated by the Interstate Commerce Commission, and effective July 1, 1909, requires the carriers to include in the "Cost of Road and Equipment," any and all Additions and Betterments to the property made subsequent to June 30, 1907, and paid for through Income Account or charged to Profit and Loss Account, and that a corresponding amount be shown on the liability side of the Balance Sheet under "Appropriated Surplus—Additions to Property since June 30, 1907, through Income"; the said date being the time when Section 20 of

the Act to Regulate Commerce extending the jurisdiction of the Commission over the accounts of the carriers became effective. The Board of Managers of your Company have readjusted the accounts so that the transactions prior to June 30, 1907, will conform to the practice subsequent to that date as prescribed by the Interstate Commerce Commission and have therefore added to the cost of property $6,751,837.48, being the amount of current or accumulated income expended for Additions and Betterments prior to June 30, 1907, and a like sum has been credited to "Appropriated Surplus—Additions to Property Prior to June 30, 1907, through Income"; and the said account for the first time appears in the Balance Sheet of December 31, 1911, which forms a part of this Report.

These expenditures, aggregating $6,751,837.48, extended over a period of years and were incurred on account of the following items:

Right of Way and Station Grounds	$75,189.28
Widening Cuts and Fills	2,069.58
Grade Reductions and Changes of Line	111,084.72
Tunnel Improvements	6,255.31
Bridges, Trestles and Culverts	582,222.83
Increased Weight of Rail	635,035.49
Track Fastenings and Appurtenances	11,507.54
Ballast	131,919.82
Additional Main Tracks	142,993.67
Sidings and Spur Tracks	906,491.38
Terminal Yards	466,232.36
Fencing Right of Way	13,259.05
Under and Over Grade Crossings	111,240.63
Elimination of Grade Crossing	226,313.27
Interlocking Block and Other Signal Apparatus	745,156.37
Telegraph and Telephone Lines	25,599.50
Station Buildings and Fixtures	232,270.31
Shops, Engine Houses and Turntables	672,762.65
Shop Machinery and Tools	146,888.15
Water and Fuel Stations	228,294.87
Grain Elevators and Storage Warehouses	1,570.22
Dock and Wharf Property	3,691.32
Electric Light and Power Plants	6,651.76
Other Additions and Betterments	10,944.40
Cost of Road	1,256,193.00
	$6,751,837.48

ALLIED STEAM RAILWAYS.

The Greenwich and Johnsonville Railway Company conveyed to The Delaware and Hudson Company, on May 17, 1911, its Salem Branch. Its Operating Revenues show a decrease of $5,807.93 for the year 1911, its Operating Expenses an increase of $5,797.20, making a decrease in Net Operating Revenues of $11,605.13. The Net Income for the year was $17,067.82, an increase of $1,778.64 over 1910. The increase in Operating Expenses is largely due to unusual expenditures for maintenance of equipment during the year.

The Quebec, Montreal and Southern Railway Company shows an increase in Operating Revenues for the year 1911 of $73,435.58 as compared with the previous year. The Operating Expenses show an increase of $108,632.73, making a decrease in Net Operating Revenues of $35,197.15. The Net Income, independent of interest charges due The Delaware and Hudson Company, amounted to $136,819.80, a decrease of $41,736.94. The decrease in Net Operating Revenues is due largely to the extraordinary charges for maintenance during the year, there being an increase of $14,878.81 in Ties and $22,198.54 in Bridges, Trestles and Culverts. The Frappier Bridge burned twice in the month of August making necessary heavy temporary repairs. Maintenance of Equipment shows an increase of $14,519.35 due to repairs and renewals of steam locomotives and freight train cars.

The Napierville Junction Railway Company shows an increase in Operating Revenues for the year 1911 of $1,386.28 as compared with the previous year. The Operating Expenses show an increase of $5,821.45, making a decrease in Net Operating Revenues of $4,435.17. The Net Income amounted tc $21,910.09, or 3.65 per cent. on the Capital Stock outstanding. The decrease in Net Operating Revenues is due largely to an increase in amount paid for injuries to persons.

ALLIED ELECTRIC RAILWAYS.

Work is in progress on the United Traction Co., placing under ground the feeder wires extending from Broadway and Beaver Street to Madison Avenue and South Pearl Street in the City of Albany, and for a short distance in Rensselaer, N. Y. Three submarine cables were laid under the Hudson River connecting the feeder lines in Albany and Rensselaer. The total cost will be about $84,000. During the year there were rebuilt forty-one (41) passenger cars, increasing the capacity approximately ten per cent.; and there were placed in service twelve (12) new "Pay Enter" cars.

The Hudson Valley Railway Company and the Schenectady Railway Company have entered into an arrangement for the operation of through cars between Albany and Glens Falls via Schenectady, effective October 16, 1911. During the winter, cars in through service leave terminals every two hours, while in the summer they will probably be operated on an hourly schedule. This improvement in the service should result in an increase in the passenger traffic.

Increases in Net Operating Revenues were as follows: United Traction Company, $19,344.31; Hudson Valley Railway Company, $38,020.88; Schenectady Railway Company, $25,327.35; Troy and New England Railway Company, $1,538.87; Plattsburgh Traction Company, $2,786.29.

Dividends of 4 per cent. for the year 1911 were declared on the Capital Stock of the United Traction Company; 6 per cent. on that of the Schenectady Railway Company; 4½ per cent. on that of the Troy & New England Railway Company, and 6 per cent. on that of the Plattsburgh Traction Company.

ALLIED BOAT LINES.

The new steamer "Horicon," capacity 1,800 passengers, made its first trip on Lake George on August 20, 1911. This steamer will perform the principal trip on Lake George, handling the through passengers traveling via Lake George and Lake Champlain.

The Motor Boat "Pampero," capacity 30 passengers, experienced a successful season in 1911. A second Motor Boat, capacity 75 passengers, has been contracted for, which will operate upon the upper end of Lake George.

HOTELS.

The Hotel Champlain, located at Bluff Point on Lake Champlain and The Fort William Henry Hotel, located at Lake George, N. Y. on Lake George, were completed in the spring of 1911 and opened for business on June 17, 1911. The new buildings are of fireproof material, steam heated throughout, amply supplied with bathrooms, and of the most modern construction.

Both hotels experienced a successful summer season. Hotel Champlain closed on October 1, 1911. The Fort William Henry Hotel is being operated throughout the year.

LITIGATION.

There has been no final determination of the litigated matters mentioned in this Company's last Annual Report; the suits then referred to are still pending.

By order of the Board of Managers,

L. F. LOREE,
President

BALANCE SHEET.

ASSETS.

Items.	1911.	1910.	Increase.	Decrease.
Unmined Coal Owned and Controlled	$16,667,697.24	$16,828,496.90	.....	$160,799.66
Advances on Unmined Coal	361,129.71	598,125.72	.....	236,996.01
Real Estate	4,846,119.40	4,730,624.12	$115,495.28	
Road and Equipment—The D. & H. Co.	58,858,151.17	48,838,359.29	10,019,791.88	
Road and Equipment—Canadian Lines	6,308,139.71	6,287,591.80	20,547.91	
Floating Equipment	31.00	9,880.00	.....	9,849.00
Coal Department Equipment, Cars, Motors, Mules, Horses, etc.	1,263,292.17	1,179,953.82	83,338.35	
Coal Handling and Storage Plants	95,877.17	270,309.76	.....	174,432.59
Stocks and Bonds	27,014,189.46	23,967,687.46	3,046,502.00	
Cash	1,921,783.81	1,782,372.47	139,411.34	
Fire Insurance Fund	336,723.56	316,762.85	19,960.71	
Cash and Securities in Special Reserve Funds	9,393.00	.....	9,393.00	
Equipment Trust Fund	1,196,135.31	817,566.69	378,568.62	
*Special Deposits	596,678.43	.....	596,678.43	
Supplies on Hand	2,885,682.49	2,395,259.85	490,422.64	
Bills and Accounts Receivable	2,790,468.68	5,778,401.10	.....	2,987,932.42
Advances for Construction and Acquisition of New Lines	2,047,128.62	2,020,799.58	26,329.04	
TOTAL	$127,198,620.93	$115,822,191.41	$11,376,429.52	

*Unexpended balance from proceeds of Bonds deposited with Trustee to defray cost of authorized Additions and Betterments.

LIABILITIES.

Items.		1911.	1910.	Increase.	Decrease.
Capital Stock		$42,503,000.00	$42,502,000.00	$1,000.00	
Bonds as follows:					
1st and Refunding Mortgage Gold Bonds, 1943, 4%	$27,704.000				
1st Mtge. Bonds, 1917, 7%	5,000,000				
The Adirondack R'y. Co. 1st Mtge. Bonds, 1942, 4½%	1,000,000				
Schenectady & Duanesburgh R. R. 1st Mtge. Bonds, 1924, 6%	500,000				
Debentures, 1916, 4%	13,973,000				
1st Lien Equipment Bonds, 1922, 4½%	9,698,000				
Debentures, 1914, 4%	500,000				
		58,375,000.00	51,585,000.00	6,790,000.00	
Loans Payable		900,000.00	4,494,320.00	.....	$3,594,320.00
Interest, Dividends, etc., Accrued		1,371,743.86	1,066,359.17	305,384.69	
Interest, Dividends and Bonds due and not yet collected		210,796.31	196,848.10	13,948.21	
Taxes Accrued		109,644.57	310,242.66	.....	200,598.09
Special Reserve Fund Accounts		9,393.00	.....	9,393.00	
Audited Vouchers and Pay Rolls		2,773,500.85	3,088,773.52	.....	315,272.67
Other Accounts Payable		707,107.15	181,807.92	525,299.23	
Appropriated Surplus—Additions to Property prior to June 30, 1907 through Income		6,751,837.48	.....	6,751,837.48	
TOTAL LIABILITIES		$113,712,023.22	$103,425,351.37	$10,286,671.85	
General Profit and Loss, being excess of Assets over Liabilities		13,486,597.71	12,396,840.04	1,089,757.67	
TOTAL		$127,198,620.93	$115,822,191.41	$11,376,429.52	